INTERNATIONAL DIRECT INVESTMENT

Studies by the Bureau of Economic Analysis

U.S. DEPARTMENT OF COMMERCE
Economics and Statistics Administration / Bureau of Economic Analysis

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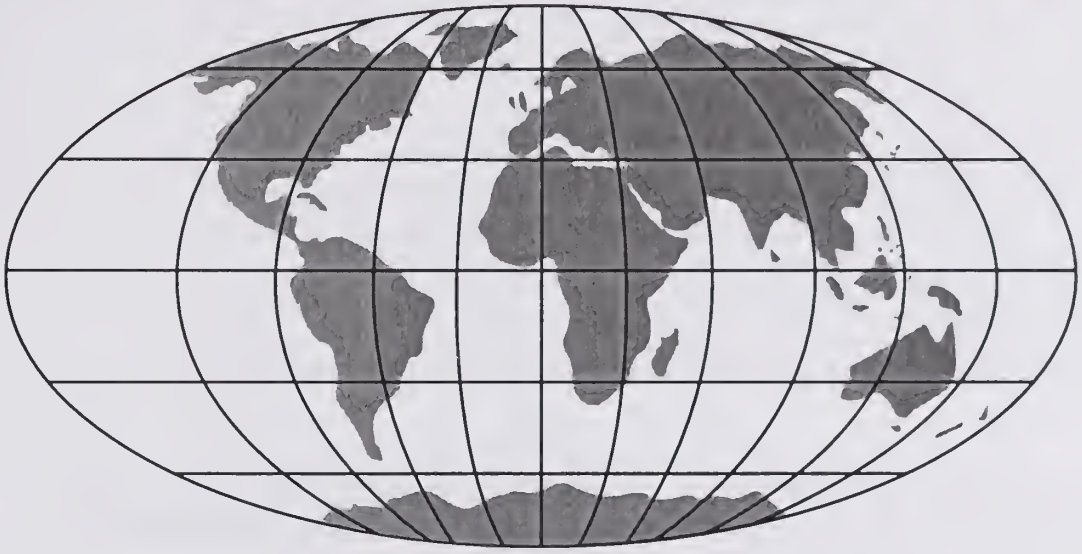

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U.S. DEPARTMENT OF COMMERCE
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Preface

THIS PUBLICATION BRINGS together a number of key studies by the Bureau of Economic Analysis (BEA) on U.S. direct investment abroad and foreign direct investment in the United States. Publishing this information in one volume provides a basic resource that can be used by Government officials and by researchers in assessing trends in direct investment and in analyzing the impact of direct investment on the U.S. and world economies. The studies cover such topics as the characteristics of multinational companies, including their profitability, productivity, and sourcing patterns; measures of direct investment that are valued in current-period prices; and supplemental balance of payments frameworks that incorporate information on ownership from BEA's direct investment surveys. These studies were originally published in the SURVEY OF CURRENT BUSINESS, BEA's monthly journal. This publication also includes users' guides to BEA's statistics on direct investment and detailed methodologies from BEA's benchmark survey publications on foreign direct investment in the United States and U.S. direct investment abroad.

BEA's official statistics on direct investment are essential to the compilation of U.S. economic accounts statistics and for the analysis of multinational companies. For example, data on positions and transactions between affiliates and their parents are needed for compiling the U.S. international transactions accounts, the international investment position of the United States, and the U.S. national income and product accounts. Data on the overall financing and operations of U.S. parent companies, their foreign affiliates, and U.S. affiliates of foreign companies are needed in analyzing the performance and operating characteristics of multinational companies. BEA updates these data regularly and publishes them in the SURVEY, usually as part of articles discussing current developments in direct investment. In addition to these regular articles, from time to time BEA publishes articles, such as those reprinted here, that focus on specific issues pertaining to direct investment.

In addition to the data presented in the studies in this volume, additional data collected in BEA's surveys of direct investment are available in the SURVEY, in separate publications, on BEA's Web site, and on diskettes. For a comprehensive, up-to-date listing of BEA information on direct investment, see the Product Guide of the International Investment Division, which is available on BEA's Web site at <www.bea.doc.gov> or by writing to International Investment Division, BE–50, Bureau of Economic Analysis, Washington, DC 20230.

Acknowledgments

Gerald A. Pollack, Associate Director for International Economics, provided general guidance for the preparation of this volume. R. David Belli, Chief of the International Investment Division (IID), provided overall supervision. Ned G. Howenstine, Chief of the Research Branch of IID, wrote the introductory text.

M. Gretchen Gibson of Publications Services in the Current Business Analysis Division coordinated the preparation of the publication for printing. Eric B. Manning edited the introductory text and typeset the text. Laura A. Oppel typeset the tables, and W. Ronnie Foster designed the cover and prepared the charts.

Direct Investment and Its Relation to the U.S. International Investment Position and to the Balance of Payments Accounts

Valuation of the U.S. Net International Investment Position

By J. Steven Landefeld and Ann M. Lawson

This article was first published in the May 1991 SURVEY OF CURRENT BUSINESS.

THIS ARTICLE reviews the issues surrounding the valuation of the U.S. net international investment position and presents revalued estimates for direct investment, for U.S. gold reserves, and for the international investment position. The article describes two alternative methods for valuing direct investment in prices of the current period, presents estimates of the direct investment totals for 1982–89 that are prepared using these methods, and compares these estimates with BEA's existing historical-cost estimates and with current-value estimates from several earlier studies. (Estimates for 1990 and revised estimates for 1987–89 will be presented in the regular article on the international investment position next month; see the box on this page.)

In the mid-to-late 1980's, concerns began to arise about the mix of valuation methods used by BEA in deriving the net international investment position. Although many of the assets in the U.S. international investment position (such as portfolio investment and most reserve assets) were being valued at current-period prices, other assets (such as direct investment and U.S. gold reserves) were being valued at the historical costs at which they were purchased. In 1990, BEA suspended publication of the net international investment position of the United States and announced that it was undertaking a review of alternative methods of valuing international investment to reflect current-period prices.[1]

The BEA review focused on direct investment because the largest differences between historical and current costs in the international investment position were thought to have resulted from a significant misstatement of the relative positions for U.S. direct investment abroad (USDIA) and foreign direct investment in the United States (FDIUS). Because most USDIA in the 1989 stock occurred in the 1960's and 1970's, it seemed likely that these assets would require a significantly larger adjustment for the cumulative effects of inflation than would those for FDIUS, most of which occurred in the late 1970's and 1980's.[2]

Revaluation of direct investment.—As a result of its review, BEA has developed two measures—current-cost and market-value—to revalue its estimates of the USDIA and FDIUS positions in prices of the current period. The *current-cost method* revalues the U.S. and foreign parents' share of their affiliates' investment in plant and equipment using a perpetual inventory model to estimate the net stock of direct investment capital at current costs, revalues direct investment in land using general price indexes, and revalues direct investment in inventories using estimates of their current replacement cost. The *market-value method* revalues the owners' equity portion of the direct investment position for USDIA and FDIUS using indexes of stock market prices. Thus, the two methods can be viewed as revaluing, respectively, the asset side of a balance sheet and the liabilities and owners' equity side of a balance sheet (see the box "Revaluation of Direct Investment in a Hypothetical Balance Sheet"). The market value differs from the current-cost

1. See "International Investment Position: Component Detail for 1989," SURVEY OF CURRENT BUSINESS 70 (June 1990): 54–85. Before its suspension in 1990, an annual estimate of the net international investment position of the United States was published each year.

2. Inflation drives a wedge between values expressed in historical prices and those in current prices. During the last 30 years, the International Monetary Fund's world price index has risen more than 4 percent a year, amounting to more than a threefold increase over the period. Such an inflation rate may hinder meaningful comparisons of dollar values at different points in time. As a result, measures of flows, which are in current prices, are often restated to constant prices, and measures of stocks, which are valued in acquisition (or historical) prices, are often restated to current (or to constant) prices. Consistent comparisons of business income and assets over time and of rates of return, capital productivity, and capital/labor ratios require such valuations.

Current-cost, market-value, and historical-cost estimates of direct investment for 1990 and revised estimates for 1987–89 will appear in the annual article on the U.S. international investment position in the June 1991 SURVEY OF CURRENT BUSINESS. The revised estimates will reflect the incorporation of information from the 1987 benchmark survey of U.S. affiliates of foreign parents and the most recent annual survey of U.S. parents of foreign affiliates. Detailed estimates by country and industry are available only in historical costs.

value in that it is an estimate of firms' aggregate net worth, including not only the current value of tangible assets, but also the market value of intangible assets—such as patents, trademarks, management, and name recognition. The market value may also reflect changes in the general economic outlook or in the outlook for a particular industry—changes that may not be related to the prices of tangible assets.

BEA's revaluation of direct investment assets from historical cost to current cost raises the value of the USDIA position at yearend 1989 by $162.4 billion, to $535.9 billion, and raises the FDIUS position by $56.7 billion, to $457.6 billion (chart 4 and table 1). Revaluation of owners' equity from historical cost to market value raises the value of the USDIA position at yearend 1989 by $431.1 billion, to $804.5 billion, and raises the FDIUS position by $142.9 billion, to $543.7 billion. On a historical-cost basis, the U.S. net direct investment position at yearend 1989 was $27.4 billion. Revaluation to current cost raises the net position to $78.3 billion; revaluation to market value raises the net position to $260.8 billion. The difference between the current-cost and market-value estimates reflects significantly different rates of change in recent years in stock prices and in replacement costs of tangible assets.

Revaluation of U.S. gold reserves.—BEA has revalued U.S. gold reserves from the 1973 par value of $42.22 per fine troy ounce previously used in the international investment position to the yearend market price, as reported for gold on the London fixing. The revaluation puts gold reserves on the same current-cost valuation basis as other reserve assets and values gold reserves on the same basis as gold held in private portfolios. The following tabulation provides the historical values for U.S. gold reserves based on the 1973 par value and the current values based on market prices.

[Millions of dollars]

Year	Historical	Current
1982	11,148	120,653
1983	11,121	100,484
1984	11,096	81,202
1985	11,090	85,834
1986	11,064	102,428
1987	11,078	127,648
1988	11,057	107,434
1989	11,059	105,164

Table 1.—U.S. Direct Investment Positions Using Alternative BEA Methods of Valuation, Amounts Outstanding at Yearend, 1982–89

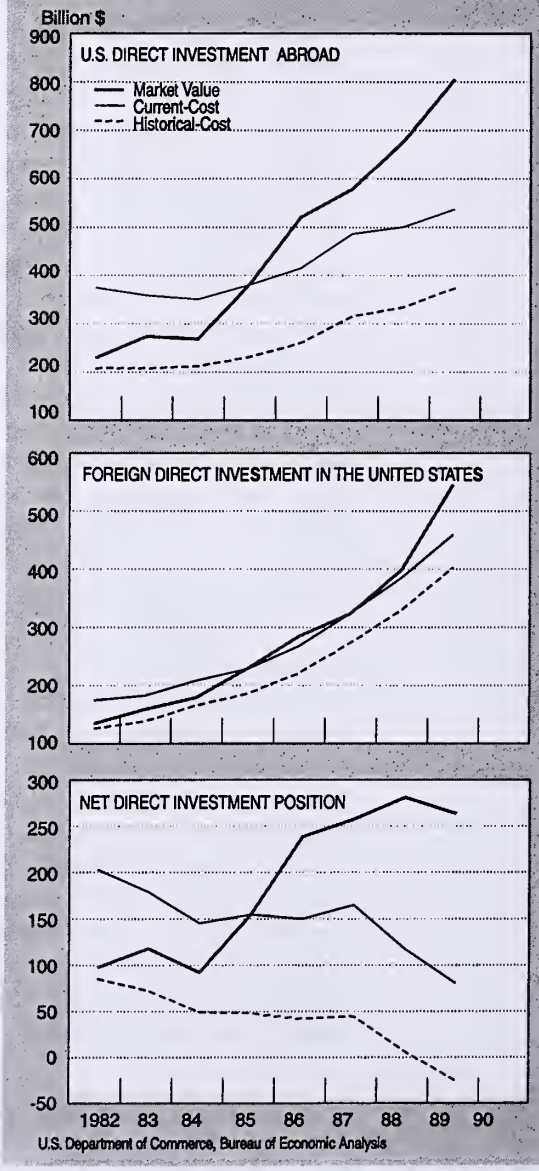
[Millions of dollars]

Valuation method	1982	1983	1984	1985	1986	1987	1988	1989
	U.S. direct investment abroad							
Historical-cost	207,752	207,203	211,480	230,250	259,800	314,307	333,501	373,436
Current-cost [1]	374,003	357,900	350,007	379,556	414,091	485,178	499,500	535,870
Market-value [2]	228,304	273,313	267,636	380,478	519,413	577,603	675,984	804,525
	Foreign direct investment in the United States							
Historical-cost	124,677	137,061	164,583	184,615	220,414	271,788	328,851	400,817
Current-cost [1]	173,223	181,289	207,159	227,223	266,541	322,725	384,009	457,566
Market-value [2]	133,044	157,548	177,726	227,949	283,153	322,579	397,535	543,703
	Direct investment, net							
Historical-cost	83,075	70,142	46,897	45,635	39,386	42,519	4,650	–27,381
Current-cost [1]	200,780	176,611	142,848	152,333	147,550	162,453	115,491	78,304
Market-value [2]	95,260	115,765	89,910	152,529	236,260	255,024	278,449	260,822

1. Only tangible assets on the asset side of the balance sheet are revalued at their current cost. See "Technical Notes" for methodological details.
2. Only owners' equity on the liabilities and owners' equity side of the balance sheet is revalued to market value. See "Technical Notes" for methodological details.

CHART 4

Alternative Valuation of Direct Investment, 1982–89



Revaluing U.S. gold reserves to the yearend 1989 market price of $401.50 per fine troy ounce raises the 1989 value of these reserves in the investment position by $94.1 billion, from $11.1 billion to $105.2 billion.

U.S. international investment position.—After the revaluations of direct investment and U.S. gold reserves, the major components of the international investment position may be viewed as valued at or near current-period prices (table 2). The following list summarizes the valuations used for the major investment position components:

- *Direct investment* has been revalued to current-period prices using both stock market prices for equity investment and current-cost values for tangible assets.
- *Portfolio investments* in foreign and U.S. securities are valued at current-period prices; for these frequently traded assets held in private and public portfolios, the position estimates are based on changes in stock market prices and, in the case of bonds, on changes in bond prices.
- *Short-term loans and other short-term liabilities* to banks and nonbanks are recorded at historical cost because the face, or claim, value recorded on a firm's books is normally roughly equal to the current-period value.
- *Official reserve assets* are valued at current-period private market prices; U.S. gold reserves have been revalued to current-period private market prices.
- *Long-term loans and other long-term liabilities* are valued at historical cost. For loans held to maturity, the maximum claim a lender can collect is the book value of the principal on the loan, so loans and other long-term liabilities generally need not be revalued to reflect inflation.

  In recent years, the Third World debt problem and the U.S. savings and loan problem have indicated that there may be sizable differences, reflecting increased risk of default,

Table 2.—Valuation of Components of the U.S. International Investment Position

Type of investment	Type of valuation
U.S. assets abroad:	
U.S. official reserve assets:	
Gold	Current
Special drawing rights	Current
Reserve position in the International Monetary Fund	Current
Foreign currencies	Current
U.S. Government assets, other than official reserve assets:	
U.S. loans and other long-term assets	Current: Approximated by historical claim value with no adjustment made for default risk.
Repayable in dollars	Current: Approximated by historical claim value with no adjustment made for default risk.
Other	Current: Approximated by historical claim value with no adjustment made for default risk.
U.S. foreign currency holdings and U.S. short-term assets	Current: For U.S. foreign currency holdings, based on the end-of-period exchange rates: for U.S. short-term assets, approximated by historical claim value with no adjustment made for default risk
U.S. private assets:	
Direct investment abroad	Current
Foreign securities	Current
Bonds	Current
Corporate stocks	Current
U.S. claims on unaffiliated foreigners reported by U.S. nonbanking concerns	Current: Approximated by historical claim value with no adjustment made for default risk.
U.S. claims reported by U.S. banks, not included elsewhere	Current: Approximated by historical claim value with no adjustment made for default risk.
Foreign assets in the United States:	
Foreign official assets in the United States:	
U.S. Government securities	Current
U.S. Treasury securities	Current
Other	Current
Other U.S. Government liabilities	Current: Approximated by historical claim value with no adjustment made for default risk.
U.S. liabilities reported by U.S. banks, not included elsewhere	Current: Approximated by historical claim value with no adjustment made for default risk.
Other foreign official assets	Current
Other foreign assets in the United States:	
Direct investment in the United States	Current
U.S. Treasury securities	Current
U.S. securities other than U.S. Treasury securities	Current
Corporate and other bonds	Current
Corporate stocks	Current
U.S. liabilities to unaffiliated foreigners reported by U.S. nonbanking concerns	Current: Approximated by historical claim value with no adjustment made for default risk.
U.S. liabilities reported by U.S. banks, not included elsewhere	Current: Approximated by historical claim value with no adjustment made for default risk.

between market values and book values. Unfortunately, the available estimates of market value—from secondary markets, appraisals, or indirect methods—are of limited value.

BEA's revaluation of the U.S. direct investment position and the U.S. reserve gold position from historical cost to current cost reduces the deficit in the U.S. net international investment position at yearend 1989 by $199.8 billion, to $464.0 billion. The revaluation to market value reduces the deficit by $382.3 billion, to $281.4 billion (table 3).

It should be noted that unrecorded capital inflows could have a significant impact on BEA's position estimates. During the 1980's, there was a large and persistent statistical discrepancy between the current and the capital accounts in the U.S. balance of payments. The cumulative statistical discrepancy, which amounted to $178 billion, indicated either an overstatement of the current-account deficit or an understatement of net capital inflows into the United States. To the extent that this statistical discrepancy was due to unrecorded capital inflows, particularly of portfolio capital, the foreign investment position in the United States is understated. The Economic Statistics Initiative in the Administration's fiscal 1992 budget calls for improving the estimates of U.S. capital flows. Under this initiative, the measures of international flows of portfolio capital would be strengthened to take into account new channels of financing and new types of financial instruments, and the measures of direct investment would be strengthened by including estimates for small reporters and nonreporters.[3]

Position estimates and measures of wealth.—The current-cost estimates presented in this article put the U.S. international investment position estimates on a basis comparable with BEA's current-cost estimates of total U.S. fixed reproducible tangible wealth and with the Federal Reserve Board's estimates of U.S. domestic net worth—that is, the sum of tangible assets located in the United States, including plant and equipment, inventories, and land.[4] With consistent current-

3. See "Improving the Quality of Economic Statistics: The 1992 Economic Statistics Initiative" in the March 1991 SURVEY.

4. BEA has produced estimates of the gross and net stocks of domestic fixed reproducible assets on consistent current- and constant-cost bases since

Table 3.—U.S. International Investment Positions Using Alternative BEA Methods of Valuation, Amounts Outstanding at Yearend, 1982–89

[Millions of dollars]

Valuation method	1982	1983	1984	1985	1986	1987	1988	1989
	U.S. assets abroad							
Historical-cost	824,755	873,457	895,912	949,723	1,073,399	1,175,932	1,265,620	1,412,515
Current-cost	1,100,493	1,113,517	1,104,545	1,173,773	1,319,054	1,463,373	1,527,996	1,669,054
Market-value	954,794	1,028,930	1,022,174	1,174,695	1,424,376	1,555,798	1,704,480	1,937,709
	Foreign assets in the United States							
Historical-cost	688,052	784,453	898,074	1,066,937	1,347,085	1,553,998	1,796,704	2,076,262
Current-cost	736,598	828,681	940,650	1,109,545	1,393,212	1,604,935	1,851,862	2,133,011
Market-value	696,419	804,940	911,217	1,110,271	1,409,824	1,604,789	1,865,388	2,219,148
	International investment, net							
Historical-cost	136,703	89,004	–2,162	–117,214	–273,686	–378,066	–531,084	–663,747
Current-cost	363,895	284,836	163,895	64,228	–74,158	–141,562	–323,866	–463,957
Market-value	258,375	223,990	110,957	64,424	14,552	–48,991	–160,908	–281,439

Acknowledgments

BEA's direct investment revaluation initiative was conducted under the general direction of J. Steven Landefeld, Associate Director for International Economics, with the assistance of Christopher L. Bach, Chief of the Balance of Payments Division, and Betty L. Barker, Chief of the International Investment Division. Ann M. Lawson, Chief of the Special Studies Branch, Balance of Payments Division, Ralph Kozlow, Chief of the Special Surveys Branch, International Investment Division, and John C. Musgrave, National Income and Wealth Division, coordinated efforts within BEA to produce the final estimates. Henry Townsend, Michael A. Mann, Douglas B. Weinberg, and Eric J. Troyer of the Balance of Payments Division provided assistance with methodological research and preparation of the estimates. Special tabulations of historical foreign direct investment data were provided by Smith W. Allnutt III, Arnold Gilbert, and Jane Fry of the International Investment Division. The estimates and methods benefited significantly by comments from BEA staff and from William G. Dewald, Robert Eisner, John A. German, Craig S. Hakkio, Walther Lederer, and Paul J. Pieper.

cost estimates of the value of foreign assets in the United States and of U.S. assets here and abroad, it is possible to evaluate changes in the size of national net worth, the distribution of net worth between foreign and domestic saving and investment, and changes in the rate of return to such investments over time.

1972. The Federal Reserve Board uses BEA's current-cost estimates, along with an estimate of the market value of land, to estimate total tangible assets located in the United States, or domestic net worth, in its balance sheets for the U.S. economy.

At yearend 1989, domestic net worth in the United States was $16,017.2 billion.[5] After BEA's revaluations, the current-cost value of domestic assets owned by foreigners was $1,579.3 billion, and the current-cost value of U.S. assets abroad was $1,025.1 billion, and the value of U.S. monetary gold and of special drawing rights was $115.1 billion. Subtracting the current-cost value of domestic assets owned by foreigners from domestic

5. Board of Governors of the Federal Reserve System, *Balance Sheets for the U.S. Economy, 1945–90*, Board of Governors of the Federal Reserve System, Publication C (Washington, DC: March 1991).

Revaluation of Direct Investment in a Hypothetical Balance Sheet

The balance sheet in table A is for a hypothetical wholly owned foreign affiliate of a U.S. firm; in this balance sheet, all of the figures are recorded at historical cost. Table B shows the balance sheet after revaluation using the current-cost method, and table C shows the balance sheet after revaluation using the market-value method.

In table B, using the current-cost method revalues only tangible assets—inventories and property, plant, and equipment (PP&E)—on the left side of the balance sheet. Net PP&E is revalued from $233,571 at historical cost to $359,092 at current cost, and inventories are revalued from $103,803 to $117,318. Thus, the value of the firm's tangible assets is $139,036 greater at current cost than at historical cost. Financial assets (current and noncurrent) do not need to be revalued, because the historical costs of these assets are assumed to equal or approximate their current-period prices. On the right side of the balance sheet, owners' equity is revalued from $387,102 to $526,139 to reflect the adjustment in the value of the tangible assets on the left side.

In table C, using the market-value method revalues owners' equity, on the right side of the balance sheet, to reflect yearend stock market prices. Owners' equity is revalued from $387,102 at historical cost to $793,559 at market value. Liabilities, which are also on the right side of the balance sheet, do not need to be revalued, because they are assumed to be approximately at current-period prices. The counterentry on the left side of the balance sheet is assumed to be in goodwill, which is included under "other" noncurrent assets. Goodwill is the balancing item often used to reflect the difference between the acquisition price of a firm and the net value of the firm's assets less its liabilities.

Table A.—Balance Sheet at Historical Cost

Assets		Liabilities and owners' equity	
Current:		Liabilities:	
Inventories	$103,803	Current liabilities and long-term debt.	$504,956
Other	407,341	Other liabilities	107,942
Total	511,144	Total	612,898
Noncurrent:		Owners' equity:	
Property, plant, and equipment (PP&E).	420,720	Owners' equity	387,102
Less: Accumulated depreciation.	–187,149	Total	387,102
Net PP&E	233,571		
Other	255,286		
Total	488,856		
Addenda: Net tangible assets	337,374		
Total assets	1,000,000	Total liabilities and owners' equity.	1,000,000

Table B.—Balance Sheet Using Current-Cost Method

Assets		Liabilities and owners' equity	
Current:		Liabilities:	
Inventories	$117,318	Current liabilities and long-term debt.	$504,956
Other	407,341	Other liabilities	107,942
Total	524,659	Total	612,898
Noncurrent:		Owners' equity:	
Property, plant, and equipment (PP&E).	646,816	Owners' equity	526,139
Less: Accumulated depreciation.	–287,723	Total	526,139
Net PP&E	359,092		
Other	255,286		
Total	614,378		
Addenda: Net tangible assets	476,410		
Total assets	1,139,037	Total liabilities and owners' equity.	1,139,037

Table C.—Balance Sheet Using Market-Value Method

Assets		Liabilities and owners' equity	
Current:		Liabilities:	
Inventories	$103,803	Current liabilities and long-term debt.	$504,956
Other	407,341	Other liabilities	107,942
Total	511,144	Total	612,898
Noncurrent:		Owners' equity:	
Property, plant, and equipment (PP&E).	420,720	Owners' equity	793,559
Less: Accumulated depreciation.	–187,149	Total	793,559
Net PP&E	233,571		
Other	661,742		
Total	895,314		
Addenda: Net tangible assets	337,374		
Total assets	1,406,457	Total liabilities and owners' equity.	1,406,457

net worth and adding the current-cost value of U.S. assets abroad and the value of U.S. monetary gold and of special drawing rights produces a national net worth of $15,578.1 billion at yearend 1989.

Valuation of Direct Investment

The question of undervaluation of the U.S. direct investment position abroad relative to the foreign direct investment position in the United States was first explored in a series of papers beginning in the late 1980's; the most comprehensive were by Ulan and Dewald, Eisner and Pieper, and Lederer.[6] These authors used a variety of techniques to estimate the current-cost value of direct investment: Revaluation of the cumulative direct investment flows by using a replacement cost index for capital goods or by using various stock market indexes; capitalization of the annual earnings flows from FDIUS and USDIA by a common discount rate to derive an implicit current value of the positions; and use of the ratio of current-cost value to historical-cost value for the U.S. stock of property, plant, and equipment (PP&E) and inventories to estimate the current replacement cost value of tangible assets related to USDIA and FDIUS. In producing the current-value estimates of the direct investment position, BEA has built upon and refined the methods used in these exploratory studies. The remainder of this section describes BEA's methodology and estimates and then compares them with these studies.

BEA's current-cost estimates

Method.—The current-cost method revalues tangible assets using a perpetual inventory model for plant and equipment, general price indexes for land, and special adjustment factors for inventories. The model used for revaluing the direct investors' shares of investment in plant and equipment by affiliates is the same one used to derive BEA's estimates of total U.S. fixed reproducible capital. The parents' share of equity in FDIUS and USDIA affiliates has averaged about 80 percent in recent years.

The perpetual inventory model first revalues each year's plant and equipment investment from historical cost to constant cost using U.S. capital goods price indexes for FDIUS and a weighted average of country-by-industry price indexes for USDIA. The constant-cost gross capital stock of plant and equipment for a given year is then obtained by cumulating past investment in plant and equipment and deducting the cumulated value of plant and equipment investment that has been discarded, using estimated average service lives and retirement patterns. The constant-cost net capital stock of plant and equipment is obtained in a similar manner, using a depreciation formula to write off the value of the assets over their service lives. The constant-cost net capital stock is then revalued to current cost using the appropriate capital goods price indexes.

The current-cost values for the net capital stock of plant and equipment derived by this method are added to current-cost estimates of the parents' share of their affiliates' land and inventories. Land is revalued using U.S. and foreign gross national (domestic) product price indexes. Inventories are revalued using ratios of current-cost to historical-cost values for U.S. inventory stocks. The sum of the revalued plant and equipment, land, and inventories produces a current-cost replacement value for all tangible assets.

One of the major advantages of the perpetual inventory model is that it explicitly takes into account current-cost depreciation, as well as the timing pattern of investments and differences in prices across industries and countries. Nevertheless, uncertainties about the appropriate choice of service lives and pattern of depreciation can have a large impact on the resulting estimates of capital stocks of plant and equipment. The sensitivity of the estimates to changes in underlying assumptions, as well as a more detailed discussion of the methodology, is presented in the "Technical Notes."

Estimates.—Although revaluation to current costs significantly changes the relative levels of the USDIA and FDIUS positions, the trend in the current-cost estimates is similar to that in the historical-cost estimates—both show a smaller increase in the USDIA position than in the FDIUS position during the 1980's. From 1982 to 1989, the USDIA position in current costs grew $161.9 billion, from $374.0 billion to $535.9 billion. Over the same period, the FDIUS position in current costs grew $284.3 billion, from $173.2 billion to $457.6 billion. As a result, the net direct investment position dropped from $200.8 billion in 1982 to $78.3 billion in 1989.

6. Michael Ulan and William G. Dewald, "The U.S. Net International Investment Position: Misstated and Misunderstood," in James A. Dorn and William A. Niskanen, ed., *Dollars, Deficits, and Trade* (Norwel, MA: Kluwer Academic Publishers for the Cato Institute, 1989).

Robert Eisner and Paul J. Pieper, "The World's Greatest Debtor Nation?," in *The North American Review of Economics and Finance*, vol. 1, no. 1 (Greenwich, CT: JAI Press, 1990).

Walther Lederer, "The Valuation of U.S. Direct Investment Abroad," Unpublished (Washington, DC: Board of Governors of the Federal Reserve System, May 8, 1990).

The sources of change in the year-to-year USDIA and FDIUS positions in current costs are presented in table 4. In the table, changes attributable to capital inflows and outflows are distinguished from changes attributable to valuation adjustments for price changes, exchange rate changes, and "other changes."

The price change adjustment reflects changes in capital goods prices (either from movements in the price of, or from shifts in the mix of, capital goods) that cause changes in the average age and price of the stock. This price change adjustment is generally negative when PP&E prices are declining—as they were in the United States in 1982–84—or when current-period PP&E investments are large enough, relative to earlier period investments, to lower the average age of the PP&E stock. The price change adjustment is generally positive under the opposite circumstances.

The exchange rate adjustment reflects the effect of translating the current-cost estimate into U.S. dollars using the yearend exchange rate times its percent change from a year earlier. The exchange rate adjustment to the USDIA position moves inversely to changes in the value of the U.S. dollar relative to other major currencies: The rise in the dollar in 1982–84 and in 1988–89 reduced the value of USDIA in foreign currencies, and the decline in the dollar in 1985–87 raised the value of USDIA in foreign currencies.

The "other changes" adjustment is a statistical entry that includes revisions due to changes in coverage, statistical discrepancies, the effect of the interaction between exchange rates and price changes, and other statistical adjustments to the value of assets.

The change in the current-cost USDIA position was $36.4 billion in 1989, compared with $14.3 billion in 1988. Capital outflows contributed $31.7 billion to the 1989 change in position. Valuation adjustments for price changes and for "other changes" increased the position by $8.7 billion, and adjustments for exchange rate changes lowered it by $4.0 billion.

The change in the current-cost FDIUS position was $73.6 billion in 1989, compared with $61.3 billion in 1988. Capital inflows contributed $72.2 billion to the 1989 change in position. Valuation adjustments for price changes increased the position by $2.2 billion, and adjustments for "other changes" decreased it by $0.8 billion. (Because U.S. affiliates of foreign parents generally maintain their financial accounts in U.S. dollars, the adjustment for changes in exchange rates is negligible.)

BEA's market-value estimates

Method.—The market-value method for estimating the value of the direct investment positions in current-period prices revalues the historical-cost

Table 4.—U.S. Direct Investment Positions at Current Cost, Amounts Outstanding and Changes, 1982–89

[Millions of dollars]

Year	Amounts outstanding, beginning of year	Changes during year (decrease (–))					Amounts outstanding, end of year
		Attributable to:				Total	
		Capital flows	Valuation adjustments for:				
			Price changes	Exchange rate changes [1]	Other changes [2]		
		(a)	(b)	(c)	(d)	(a+b+c+d)	
	U.S. direct investment abroad						
1982	401,214	967	3,316	–13,268	–18,226	–27,211	374,003
1983	374,003	6,695	–6,699	–14,226	–1,873	–16,103	357,900
1984	357,900	11,587	–3,073	–18,832	2,425	–7,893	350,007
1985	350,007	13,162	319	14,448	1,620	29,549	379,556
1986	379,556	18,679	–1,475	15,182	2,149	34,535	414,091
1987	414,091	31,045	1,395	30,737	7,910	71,087	485,178
1988	485,178	16,218	1,650	–5,163	1,617	14,322	499,500
1989	499,500	31,722	–555	–4,032	9,235	36,370	535,870
	Foreign direct investment in the United States						
1982	158,719	13,792	–1,459	.....	2,171	14,504	173,223
1983	173,223	11,946	–4,450	.....	570	8,066	181,289
1984	181,289	25,359	–1,623	.....	2,134	25,870	207,159
1985	207,159	19,022	369	.....	673	20,064	227,223
1986	227,223	34,091	4,349	.....	878	39,318	266,541
1987	266,541	46,894	5,427	.....	3,863	56,184	322,725
1988	322,725	58,435	5,197	.....	–2,348	61,284	384,009
1989	384,009	72,244	2,163	.....	–850	73,557	457,566

1. Represents gains or losses on foreign currency-denominated assets due to their revaluation at current exchange rates.

2. Includes changes in coverage, statistical discrepancy, the effect of the interaction between exchange rates and price changes, and other adjustments to the value of assets.

value of equity in foreign affiliates of U.S. parents using weighted average foreign stock prices. The method revalues equity in U.S. affiliates of foreign parents using a broad-based U.S. stock price index. BEA's estimates revalue only the owners' equity portion of the position; as noted earlier, the liabilities portion is assumed to be approximately valued at current-period prices.

The market-value method is similar to that used by BEA to value portfolio investment in that both use stock price indexes to revalue equity interests in companies. The major difference is that portfolio investments are composed of frequently traded securities, whereas U.S. and foreign affiliates are often wholly owned subsidiaries, and their stock may not be publicly traded. The key assumption is that revaluation of direct investment using general stock price indexes produces *on average* a reasonable estimate of the aggregate value of affiliates in a country. See the "Technical Notes" for a more detailed discussion of the methodology.

Estimates.—On the market-value basis, unlike on either the historical-cost or the current-cost basis, the USDIA position increased more than the FDIUS position from 1982 to 1989. Although both U.S. and foreign stock market indexes rose to record levels in the 1980's, stock market prices increased more rapidly abroad than in the United States. From 1982 to 1989, the USDIA position at market value grew $576.2 billion, from $228.3 billion to $804.5 billion. Over the same period, the FDIUS position at market value grew $410.7 billion, from $133.0 billion to $543.7 billion. As a result, the net direct investment position increased from $95.3 billion in 1982 to $260.8 billion in 1989.

From 1982 to 1984, the market-value estimates of the USDIA position were lower than the current-cost estimates. As foreign stock market indexes jumped in 1985, the market-value estimate moved slightly higher than the current-cost estimate. By yearend 1989, the market value of USDIA was $804.5 billion, $268.6 billion higher than the current-cost estimate.

Detailed information on the sources of change in the year-to-year USDIA and FDIUS positions on a market-value basis is not yet available. It is clear, however, that changes attributable to stock prices and capital flows predominated over changes attributable to exchange rates and other factors.

Comparison of BEA's estimates with those of earlier studies

Table 5 presents the alternative valuations of the positions for USDIA and for FDIUS that have been made by BEA and by authors of earlier studies. The methodologies used and results obtained are compared in this section.

Current-cost method.—In addition to using different source data, the BEA current-cost estimates differ from the current-cost estimates from various earlier studies for two methodological reasons.

First, BEA's current-cost measures differ from those of Ulan and Dewald and of Eisner and Pieper because BEA applies the tangible-asset price indexes only to the tangible assets. Both sets of authors applied price indexes for capital goods to the entire direct investment flow. As Lederer pointed out, broad application of the tangible-asset price indexes to all flows is incorrect because these flows are used by affiliates to finance a wide range of investments, ranging from plant and equipment to financial assets, a significant share of which are assets—such as cash and trade receivables—that do not need to be revalued. Among assets other than tangible assets, only equity stock in other corporations and intangible assets such as goodwill might arguably be revalued.

Second, BEA's current-cost estimates, unlike Lederer's estimates, are based on the perpetual inventory model, which explicitly takes into ac-

Table 5.—Alternative Valuations of the U.S. Direct Investment Positions, Amounts Outstanding at Yearend 1988

[Billions of dollars]

Valuation method	U.S. direct investment abroad	Foreign direct investment in the United States
Bureau of Economic Analysis:		
Current-cost	500	384
Market-value	676	398
Historical-cost	334	329
Michael Ulan and William G. Dewald: [1 2]		
Current-cost	715	299
Market-value	1,016	496
Capitalization of earnings	808	162
Robert Eisner and Paul J. Pieper: [3]		
Current-cost	747	338
Market-value	749	389
Walther Lederer: [4]		
Current-cost	406	n.a.

n.a. Not available

1. Estimates are for 1987.
2. Michael Ulan and William G. Dewald, "The U.S. Net International Investment Position: Misstated and Misunderstood," in James A. Dorn and William A. Niskanen, ed., *Dollars, Deficits, and Trade* (Norwell, MA: Kluwer Academic Publishers for the Cato Institute, 1989).
3. Robert Eisner and Paul J. Pieper, "The World's Greatest Debtor Nation?," in *North American Review of Economics and Finance*, volume 1, number 1 (Greenwich, CT: JAI Press, Inc., 1990).
4. Walther Lederer, "The Valuation of U.S. Direct Investments Abroad," unpublished (Washington, DC: Board of Governors of the Federal Reserve System, May 8, 1990).

count the timing and composition of investment in plant and equipment and of prices both here and abroad. Lederer's estimates were based on the single ratio of current cost to historical cost for the total U.S. capital stock of plant and equipment and other tangible assets. This approach implicitly assumes that the timing of investment flows, the distribution of assets, and the rate of inflation are the same for U.S. domestic investment, USDIA, and FDIUS; however, three-fourths of FDIUS included in the yearend 1989 FDIUS position occurred in the 1980's and thus requires a smaller revaluation than the USDIA position, a large share of which occurred in the 1960's and 1970's.

Market-value method.—BEA's market-value estimates differ from those of Ulan and Dewald because the BEA method excludes the portion of the movements in stock prices that are attributable to the retention of earnings. In this way, BEA avoids the double-counting of retained earnings in the Ulan and Dewald estimates that resulted from their applying an unadjusted stock price index to direct investment capital flows that included reinvested earnings. Furthermore, BEA's market-value estimates differ from those of Ulan and Dewald and of Eisner and Pieper because BEA's adjusted stock price indexes are applied only to the owners' equity portion of the direct investment capital flows; in contrast, both sets of authors applied their price indexes to the entire flow of direct investment capital.

Capitalization of earnings.—BEA has not produced an estimate based on the capitalization of direct investment earnings because of the large uncertainties involved in choosing an appropriate rate of discount. Given the existence of exchange rate risks, expropriation risks, less than perfect capital mobility, and persistent differences in interest rates across countries, it seems unreasonable to assume that a single discount rate could be appropriate for discounting investment flows from USDIA and FDIUS; further, small differences in discount rates produce large differences in the capitalized value of earnings. In addition, choosing a discount rate predetermines the rate of return one can derive from the capital stock and thus yields no independent information.

Valuation of Gold and Debt

U.S. gold reserves

In order to more accurately reflect the current value of all assets in the international investment position and to provide consistent current-cost treatment of U.S. gold reserves with other reserve assets and private gold, BEA has revalued gold reserves from the 1973 par value of $42.22 per fine troy ounce to yearend market prices, as reported for gold on the London fixing.

Using the yearend 1989 market price of gold of $401.50 per fine troy ounce raises the 1989 value of U.S. reserve holdings of gold by $94.1 billion, from $11.1 billion to $105.2 billion. Revaluation to market value significantly raises the value of gold reserves throughout the 1982–89 period. The physical U.S. gold stock changed little throughout 1982–89, so virtually all of the changes in the year-to-year position of gold at current cost reflect changes in the price of gold. From 1982 to 1989, the current-cost value of U.S. gold reserves declined from $120.7 billion to $105.2 billion.

Long-term loans and other long-term debt

The valuation of debt, particularly that of heavily indebted nations, is a major issue for the 1990's, both here and abroad. In the past, valuation at historical cost seemed reasonable for debt that was unlikely to be sold in secondary markets—for example, government or bank debt. Bad debts, when deemed uncollectible, were written off by banks or forgiven by governments, and these writeoffs were reflected in the position estimates. Although a large dollar volume of debt to Third World nations was written off or forgiven during the 1980's, much debt that may yet have to be written off or forgiven is still being recorded at book value. In recent years, the rescheduling, selling, repurchasing, and swapping of such debt has led to development of a secondary market for the debt of these nations.

While there is some default risk attached to the debt of a substantial number of countries, market attention has focused on the debt of heavily indebted countries. For these countries, the secondary market value of their long-term bank debt has been estimated at about one-third of the book value of that debt.[7] Ulan and Dewald, using these secondary market values, estimated that discounting bank loans to less developed countries would reduce the value of claims reported by U.S. banks by $40–50 billion in 1989. Such estimates are speculative because secondary markets are extremely thin; any large purchase can substantially change the secondary market price. Indeed, when Brazil bought back a portion of

7. Salomon Brothers, "Indicative Prices for Less Developed Country Bank Loans," January 4, 1990.

its own debt in March 1988, the secondary market price of Brazilian debt doubled. In addition, these secondary market discounts cannot simply be applied to bank debt to produce market-value estimates, because the value of bank claims varies substantially according to the extent to which loans have been collateralized and/or subordinated. Moreover, many of these loans have been written down substantially from face value, and the true market value of current bank claims may be only half of the amount implied by such estimates.

Although revaluation of debt was not attempted in the work reported in this article, BEA intends to examine the question further. The issue will face BEA—for both domestic and international debt—in the more general context of moving to an integrated set of national and international income and wealth accounts.[8]

Technical Notes

This section provides additional detail on the two methods—current-cost and market-value—used by BEA to revalue the USDIA and FDIUS positions. The discussion covers the assumptions underling each method, including tests of the sensitivity of the estimates to several of these assumptions.

Current-cost method

Under this method, U.S. and foreign parents' shares of affiliates' tangible assets—inventory stocks and PP&E—are revalued to current costs. Inventory stocks are revalued using ratios of current-cost to historical-cost inventory stocks for nonfarm corporate business from the U.S. national income and product accounts (NIPA's); these adjustments convert inventories from historical costs to current replacement costs. For FDIUS, land is revalued using the implicit price deflator for gross national product; for USDIA, land is revalued using country-specific implicit price deflators for gross national (or domestic) product. Plant and equipment is revalued using a perpetual inventory model.

Perpetual inventory model.—The current-cost method uses a perpetual inventory model to estimate the gross and net stocks of plant and equipment for foreign affiliates of U.S. parents and for U.S. affiliates of foreign parents, by industry and geographic area.[9] The model starts with plant and equipment investments in current and constant dollars and obtains the gross plant and equipment capital stock for a given year by cumulating past plant and equipment investments and deducting the cumulated value of plant and equipment that has been discarded or retired, using estimated average service lives and retirement patterns. Net plant and equipment capital stocks are derived by deducting depreciation for plant and equipment from the gross stock. The depreciation estimates are based on the straight-line formula used in the NIPA's, in which annual depreciation for a fixed asset is equal to its gross value divided by its service life.

The constant-cost estimates measure the net plant and equipment stocks in the prices of a base year, according to the following equation:

$$K_n = \sum (I_t - D_t)\left(\frac{P_b}{P_t}\right).$$

In this formula, K_n is the constant-cost net stock of plant and equipment in year n, expressed in the prices of base year b; I_t is plant and equipment expenditures, net of discards of retired plant and equipment, in year t; D_t is the estimated annual depreciation in year n on the plant and equipment purchased in year t; P_b is the price that would have been paid in the base year for the mix of plant and equipment purchased in year t; and P_t is the price of the plant and equipment in period t. The net plant and equipment stock in a country or region is the summation of net plant and equipment stocks across all industries in the country or region.

Current-cost plant and equipment estimates are derived by multiplying constant-cost plant and equipment estimates by current-period price indexes. Thus, current-cost estimates measure the plant and equipment stocks in prices that would have been paid if the stocks had been purchased in the period to which the plant and equipment estimates refer.

PP&E expenditures.—For USDIA and FDIUS, PP&E expenditures are derived from BEA's direct investment surveys of foreign and U.S. affiliates. For USDIA and FDIUS, it is assumed that the parents' share of PP&E expenditures equals the affiliates' PP&E expenditures multiplied by the parents' share of ownership in the affiliates.

8. For a description of BEA's plans for moving to an integrated set of national and international income and wealth accounts, see "The United Nations System of National Accounts: An Introduction," in the June 1990 SURVEY; and "Improving the Quality of Economic Statistics: The 1992 Economic Statistics Initiative," in the March 1991 SURVEY.

9. For detailed information on the perpetual inventory model, see U.S. Department of Commerce, Bureau of Economic Analysis, *Fixed Reproducible Tangible Wealth in the United States, 1925–85* (Washington, DC: U.S. Government Printing Office, June 1987): vii-x.

Gross PP&E stocks at historical-cost (book) value are also available from BEA's direct investment surveys. Yearend changes in the gross stock of PP&E (also weighted by the parents' share of ownership) that are not explained by current PP&E expenditures or discards are the result of acquisitions or divestitures of affiliates and of benchmark revisions. Such changes are treated as transfers of used PP&E to or from affiliates.

Annual PP&E investments—PP&E expenditures adjusted for discards, acquisitions, divestitures, and benchmark revisions—are distributed into the components of PP&E using detailed information from BEA's benchmark surveys of FDIUS and USDIA. Additional adjustments are made to include expensed petroleum and natural gas exploration and development expenditures in PP&E investments and stocks. Although companies may expense certain petroleum and natural gas exploration and development expenditures for financial reporting, BEA treats these investments as capitalized for the purpose of developing current-cost estimates consistent with NIPA concepts.

For FDIUS, annual PP&E expenditures at historical cost by industry of U.S. affiliate are available from the 1974, 1980, and 1987 benchmark surveys and from the 1977–79, 1981–86, and 1988 annual surveys of FDIUS. Estimates are made for 27 industry groups of affiliates. Because such estimates are not yet available for 1989, PP&E expenditures are estimated by extrapolating the results by industry from the Census Bureau's Plant and Equipment Expenditures Survey. Gross PP&E stocks at historical cost by industry of affiliate are available for 1974 and for 1980–88. Foreign parent ownership shares, by industry, are available from the 1974, 1980, and 1987 benchmark surveys and for large affiliates from the 1981–86 and 1988 annual surveys.

For USDIA, annual PP&E expenditures at historical cost by geographic area and industry of majority-owned foreign affiliates (MOFA's) are available from the 1957, 1966, 1977, and 1982 benchmark surveys and from the 1958–65, 1967–76, 1978–81, and 1983–89 annual capital expenditure surveys of USDIA.[10] Gross PP&E stocks for MOFA's are available from the 1966, 1977, and 1982 benchmark surveys and the 1983–88 annual surveys. Parent ownership shares, by geographic area and industry, are available from the 1966, 1977, and 1982 benchmark surveys and from the 1983–89 annual surveys.

For the estimates of PP&E expenditures and stocks for USDIA to be consistent with those for FDIUS, data on PP&E expenditures and stocks are needed for both MOFA's and minority-owned foreign affiliates (MINOFA's).[11] PP&E data for MINOFA's are not as complete as those for MOFA's. As a result, the relationships between net PP&E stocks for MOFA's and MINOFA's, by region and industry, as reported in BEA's 1982 benchmark survey are used to proportionally adjust the MOFA's PP&E expenditures and stocks, by region and industry, to an estimated total for MOFA's and MINOFA's combined.

For USDIA, the revaluation adjustments were based on weighted averages of data from the following countries or groups of countries: Canada, France, Germany, Italy, Japan, the United Kingdom, all other countries in Europe, and a residual for all other countries in the rest of the world.[12]

Price indexes.—For FDIUS, current- and constant-cost values for plant and equipment are derived using the annual price indexes for U.S. investments in plant and equipment, by industry, from BEA's capital stock estimates. Current- and constant-cost estimates of investment in land are derived using the implicit price deflator for U.S. gross national product.

For USDIA in Canada, France, Germany, Italy, Japan, and the United Kingdom, the current- and constant-cost values for plant and equipment are derived using the appropriate country price index, available from the Organisation for Economic Co-operation and Development (OECD), for nonresidential structures and for nonresidential equipment. Current- and constant-cost estimates of investment in land are derived for each country using its price deflator for gross national (or domestic) product.

For USDIA in "other Europe," country price indexes, available from the OECD, are used to develop weighted price indexes for structures, equipment, and gross domestic product. For USDIA in the rest of the world, U.S. price indexes are used because reliable weighted indexes for the developing countries are not available; furthermore, foreign affiliates in developing countries, particularly affiliates in the petroleum industry, are believed to acquire much of their equipment from the United States.

10. MOFA's are foreign affiliates in which the U.S. parent(s) ownership share is over 50 percent.

11. MINOFA's are foreign affiliates in which the U.S. parent(s) ownership share is between 10 percent and 50 percent.

12. PP&E is revalued according to its location rather than to the location of the direct investment claim. This treatment differs from the usual historical-cost treatment so as to allow for the use of price indexes and currency exchange rates of the country in which the PP&E is located.

Average service lives.—The average service lives and retirement patterns used for FDIUS plant and equipment are the same as those used by BEA to derive the estimates of total U.S. private fixed reproducible tangible wealth.

The service lives used for USDIA plant and equipment in Canada, France, Germany, Italy, Japan, and the United Kingdom are those used in the national economic accounts of those countries, as reported to the OECD.[13] The service lives for nonpetroleum investments in other developed countries are based on service lives used in selected small European countries and on service lives in Canada, France, Germany, Italy, Japan, and the United Kingdom. The service lives used for nonpetroleum investments in less developed countries are based on those for developed countries, but they have been lengthened because less developed countries are assumed to have slower technological obsolescence and lower labor costs (and maintenance costs) relative to capital acquisition costs. The service lives used for petroleum investments are judgmental estimates and are considerably longer than those used by BEA for the domestic petroleum industry; the use of longer service lives reflects the slower, more efficient rate at which oil is extracted in foreign countries.

Alternative service lives and the depreciation formula.—BEA examined a number of alternative assumptions about the appropriate service lives and formulas to use for depreciation. Several of these assumptions are discussed in the following paragraphs. It is possible that the longer average service lives used for USDIA do not reflect actual differences in practice between the United States and other countries. If the USDIA position at current costs were recalculated using the shorter U.S. service lives (instead of the OECD service lives) for U.S. affiliates abroad, the current-cost USDIA position for 1989 would be $61 billion lower, as would the resulting net direct investment position.

Various studies of depreciation in the United States suggest that depreciation for equipment may be more rapid in the first years of the service life than that calculated using the straight-line formula; studies also suggest that, for structures, either the depreciation rates are less or the service lives are longer than those used by BEA. BEA tested the effects of such assumptions using a declining balance formula with a depreciation rate of 1.8 times the first year's straight-line rate for equipment and using a straight-line formula with 25 percent longer service lives for structures.[14] Combining these alternatives for equipment and structures would raise the FDIUS position by $1 billion in 1989 and the USDIA position by $23 billion; the resulting net direct investment position for 1989 would be $21 billion higher.

Market-value method

Under this method, owners' equity of foreign affiliates of U.S. parents and of U.S. affiliates of foreign parents is revalued to current costs. Owners' equity included in the USDIA and FDIUS positions is the cumulative total of equity capital flows and reinvested earnings. Owners' equity is revalued to current cost using the market-equity model.

Market-equity model.—In the market-equity model, FDIUS is revalued at the aggregate level, and USDIA is revalued by a weighted average country/region estimate. The revaluation formula for parents' equity in affiliates that maintain their financial records in U.S. dollars is

$$K_t = \frac{K_{t-1} \times \left(\frac{Peoy_t}{Peoy_{t-1}}\right) + I_t \times \left(\frac{Peoy_t}{Pavg_t}\right)}{1 + RE_t \times \left(\frac{Peoy_t}{Pavg_t}\right)},$$

where K_t is the equity investment in affiliates in year t, valued at yearend stock market prices; $Peoy_t$ is the yearend stock market price index and $Pavg_t$ is the annual average stock market price index, in year t; I_t is the total equity capital flow in year t; and RE_t is the yearend ratio of retained earnings per share as reflected in the stock price index for year t.

This formula revalues U.S. and foreign parents' equity in affiliates using end-of-year stock price indexes, while adjusting for changes in annual investment and correcting for the effect of retained earnings on stock market prices during the year. The stock market data are first converted into U.S. dollars, so exchange rate effects are reflected in the market indexes.

An additional adjustment is needed for foreign affiliates of U.S. parents that maintain their financial accounts in another national currency and later translate these accounts into U.S. dollars. Investments made during the year by these

13. Derek Blades, "Service Lives Of Fixed Assets," OECD Working Paper No. 4 (Paris, France: Organisation for Economic Co-operation and Development, March 1983).

14. These assumptions about depreciation of equipment and structures are similar to the parameters suggested in a study by Hulten and Wykoff; see C.R. Hulten and F.C. Wykoff, "The Measurement of Economic Depreciation," in *Depreciation, Inflation, and the Taxation of Income from Capital* (The Urban Institute Press, 1981): 94.

foreign affiliates must be revalued from the average exchange rate during the year to the yearend exchange rate.

Equity investment flows.—Data on equity capital flows are generally available from BEA's quarterly and benchmark surveys from 1966 to 1989. For both USDIA and FDIUS, the necessary earnings, dividends, equity capital flows, and equity positions are generally available beginning in 1966 for incorporated U.S. affiliates of foreign parents and incorporated foreign affiliates of U.S. parents.

For FDIUS, the 1966 market value of the foreign equity position in incorporated U.S. affiliates is estimated by multiplying the position by the ratio of market-to-book values in 1966 for the Standard and Poor's Index for 400 Industrial Companies.[15] This method assumes that the relationship between market and book values of incorporated U.S. affiliates is similar to that of a typical large U.S. industrial corporation in 1966.

For USDIA, comparable market-to-book-value ratios for 1966 are unavailable for foreign stock markets. Therefore, the 1966 market value of U.S. parents' equity in incorporated foreign affiliates is estimated by calculating the dividends affiliates paid to U.S. parents, assuming market yields in 1966, and then dividing the value of dividends by the market yield for the year.

Time series data for unincorporated U.S. and foreign affiliates are more limited than data for incorporated affiliates. For FDIUS, distributed earnings, equity flows, and equity positions are available for unincorporated U.S. affiliates of foreign parents from 1980 to 1989. Because these data are not available for earlier years, the valuation of unincorporated affiliates begins with data for 1980. A starting position in current-cost values was created by multiplying the equity position in unincorporated U.S. affiliates by the estimated market-to-book-value ratio of incorporated U.S. affiliates in 1980. In 1989, equity capital flows from foreign parents to unincorporated U.S. affiliates accounted for 8 percent of total equity capital flows to the United States from foreign parents.

For USDIA, complete data for unincorporated foreign affiliates are available from 1982 to 1989. An initial position for 1982 was estimated by using the market-to-book-value ratio for incorporated affiliates. In 1989, equity capital flows from U.S. parents to unincorporated foreign affiliates accounted for 12 percent of total equity capital flows from U.S. parents.

Market indexes.—For FDIUS, Standard and Poor's composite stock market data are used to revalue foreign parents' equity in U.S. affiliates. For USDIA, stock market data from Morgan Stanley Capital International are used to revalue U.S. parents' equity in foreign affiliates. OECD stock market data are used for years in which the Morgan Stanley stock market data are incomplete or missing. Investments in countries where country-specific stock market data are not available are revalued using the Morgan Stanley World Index for stocks.

The market-value method, like the current-cost method, is sensitive to the assumptions used. For example, FDIUS equity was revalued using the Standard and Poor's 500 stock market index because that index has broader coverage than the Morgan Stanley index for the United States; if the Morgan Stanley U.S. index were used, the 1989 FDIUS position would be raised by $16 billion.

15. The equity position of FDIUS in 1966 is not separately available. Therefore, an estimated equity position is derived by multiplying the total 1966 direct investment position by the ratio of equity to total direct investment in 1974, the first year equity is reported separately from debt.

Rates of Return on Direct Investment

By J. Steven Landefeld, Ann M. Lawson, and Douglas B. Weinberg

Paul W. Farello, Ilona C. Greenberg, and Glenn Farello of the Balance of Payments Division and Steve B. Bezirganian and Arnold Gilbert of the International Investment Division assisted in providing data and performing methodological research for this article. This article was first published in the August 1992 SURVEY OF CURRENT BUSINESS.

THIS ARTICLE updates the alternative measures prepared by the Bureau of Economic Analysis (BEA) of the rates of return on foreign direct investment in the United States (FDIUS) and on U.S. direct investment abroad (USDIA). It compares these rates of return with those on all-U.S.-business investment and discusses possible explanations for the relatively low rates of return on FDIUS.

Last year, BEA introduced two alternative measures of the rate of return on direct investment that were based on BEA estimates of the direct investment positions valued at current-period prices: The return on direct investment positions at market value, which is a measure of financial returns to direct investment, and the return on direct investment positions valued at current cost, which is a measure of economic returns on direct investment from current operations.[1] These alternative measures overcome a major limitation of estimates of rates of return based on historical costs—the noncomparability of investments that differ considerably in age and therefore in price—by presenting estimates on a consistent valuation basis.

Table 1 shows rates of return for USDIA and FDIUS based on market value and on current cost compared with a market rate of return for all U.S. businesses; it also shows rates of return for USDIA and FDIUS based on historical costs.[2] For both USDIA and FDIUS, the rates of return at current-period prices are lower, on average, than the rates of return at historical costs. However, the differences are much larger for USDIA than for FDIUS because the adjustment needed to restate direct investment positions from historical costs to current-period prices is much larger for USDIA. This price adjustment is larger for USDIA because most USDIA occurred in the 1960's and 1970's and thus tends to be "older" than FDIUS, most of which occurred in the 1980's.

For USDIA, the rates of return at market value and at current cost are similar, on average, to the rates of return for all U.S. businesses. However, for FDIUS, the rates of return at market value and at current cost are considerably below the rates of return for all U.S. businesses. (The historical-cost rates of return for FDIUS are also quite low.) The remainder of this article examines the question of why the rates of return on FDIUS are so low relative to the rates of return on domestic investments.[3]

1. For a discussion of the various measures, see "Alternative Measures of the Rate of Return on Direct Investment," SURVEY OF CURRENT BUSINESS 71 (August 1991): 44–45. For a discussion of the estimates of direct investment at market value and current cost, see "The International Investment Position of the United States in 1991," SURVEY 72 (June 1992): 46–59. For a discussion of the concepts and estimating procedures underlying the current-period estimates of direct investment, see "Valuation of the U.S. Net International Investment Position," SURVEY 71 (May 1991): 40–49.

2. The data are limited to the period from 1982 or 1983 to 1991 because the complete information on equity flows and equity positions that is required for the market-value measure is unavailable for earlier years.

3. For other recent studies on FDIUS and the low rates of return on FDIUS, see Harry Grubert, Timothy Goodspeed, and Debrah Swenson, "Explaining the Low Taxable Income of Foreign-Controlled Companies in the United States," unpublished, contact author, Harry Grubert, U.S. Treasury) November 1991; Edward M. Graham and Paul R. Krugman, *Foreign Direct Investment in the United States*, 2d edition (Washington, DC: Institute for International Economics, 1991); and "Review of Internal Revenue Service Statistics on Foreign Controlled Domestic Corporations 1983 through 1988," prepared by KPMG Peat Marwick for the Organization for International Investment, July 1992.

Table 1.—Alternative Measures of the Rate of Return for U.S. Direct Investment Abroad, Foreign Direct Investment in the United States, and All U.S. Businesses

[Percent]

	Returns based on historical cost		Returns based on current cost		Returns based on market value		
	USDIA	FDIUS	USDIA	FDIUS	USDIA	FDIUS	All U.S. businesses [1]
1982	11.4	2.7	6.0	1.2	n.a.	n.a.	11.0
1983	12.9	3.9	7.0	2.3	11.4	4.0	9.9
1984	14.4	6.3	8.3	4.4	11.6	5.7	11.1
1985	12.6	4.3	7.9	3.3	9.1	3.2	8.7
1986	12.2	3.7	7.6	2.8	7.2	2.2	7.2
1987	13.4	3.6	8.3	2.6	7.7	2.5	8.1
1988	15.5	4.4	10.0	3.4	8.4	3.9	9.0
1989	15.2	2.2	10.2	1.6	7.9	2.2	7.6
1990	13.8	.4	9.4	.2	7.6	−.3	7.7
1991	11.2	−.7	7.7	−.8	6.9	−.2	6.0
Average, 1983–91	13.5	3.1	8.5	2.2	8.7	2.6	8.4

n.a. Not available

1. This measure is a weighted average of the after-tax earnings per dollar of stock for Standard and Poor's Composite 500 companies and the average yield on corporate bond holdings rated AAA by Moody's Investors Service. The returns on debt and equity are weighted by the ratio of debt to equities at market value for nonfinancial corporate businesses published by the Board of Governors of the Federal Reserve System, *Balance Sheets for the U.S. Economy, 1960–91*, (Washington, DC: March 1992).

USDIA U.S. direct investment abroad
FDIUS Foreign direct investment in the United States

Returns on FDIUS

In examining rates of return on FDIUS, it is important to note that a multinational company tries to maximize its total profits around the world in deciding where to invest, where to produce, and where to realize its income. As a result, a multinational company structures its operations, costs, and product pricing across countries to maximize its global profits rather than to maximize profits on an individual investment or even on all of its investments in a single country. It may accept a below-average profit to gain access to the large U.S. market or to scarce raw materials. Alternatively, it may accept low returns on some parts of its operations to take advantage of economies of scale and technological efficiencies in other parts of its operations. In addition to these types of operational—or industrial organization—factors, multinationals also take into account a number of other factors, such as differences across countries in the cost and availability of capital, in expected returns on investment, in the tax treatment of income, and in tariffs and nontariff barriers.[4]

The low rates of return on FDIUS appear to reflect certain long-term factors associated with the operations of multinational companies and the effects of a number of transitional factors that led to a surge in FDIUS in the 1980's. In the 1980's, current-account surpluses in Japan and several other countries generated excess funds available for investment. Funds were attracted to the United States by average yields on U.S. investments that were higher than those on home-country investments; this spread allowed foreign investors to accept yields that were below the average yield on U.S. investments. Further, depreciation of the dollar against most foreign currencies in the latter half of the 1980's increased potential long-term yields for those investors who believed that the U.S. dollar was undervalued. The combination of these factors meant that investments that had looked attractive from an operations perspective now also looked attractive from an investment perspective. The resulting surge in FDIUS in the 1980's meant that much of the investment on which the rates of return are calculated was relatively new, and new investments typically have lower rates of return than more mature investments. Moreover, a considerable portion of this new FDIUS consisted of acquisitions of financially distressed U.S. companies that foreign companies presumably hoped to restructure and restore to financial health.

Long-term factors associated with the goal of maximizing profits on a global basis rather than on an individual-country basis also may have held down the rates of return on FDIUS. These factors included the following: Economies of scale and the advantages of vertical integration, differences between countries in the treatment of taxes, and avoidance of tariffs and nontariff barriers.

The analysis that follows covers the rates of return on FDIUS for 10 of the 11 countries that were the largest direct investors in the United States during the last decade.[5] In 1991, these 10 countries accounted for over 90 percent of cumulative FDIUS, and the top 5 accounted for over 75 percent (table 2). It should be noted that underlying economic conditions and motivations for direct investment vary markedly among these countries, and it is difficult to generalize about the factors leading to low rates of return on their direct investments.

4. There has been much discussion about the relative importance of cost-of-capital and macroeconomic explanations versus industrial-organization explanations for direct investment. Most analysts concede that both have a role in direct investment but that industrial-organization explanations tend to have a larger role than the other explanations. See, for example, Graham and Krugman in *Foreign Direct Investment*, 35–38.

5. Although the Netherlands Antilles' FDIUS position ranks eighth among all countries, it is excluded from the analysis because of the unique nature of its inward investment, which resulted from its activity as an offshore financial center (offshore financial centers were created to avoid certain interest-rate controls, bank lending restrictions and reserve requirements, and other regulatory constraints). Additionally, it had a favorable tax treaty with the United States that offered an exemption from the withholding tax on certain interest payments from U.S. affiliates to their Antillean parents. Consequently, foreign corporations made large investments in the United States through their Antillean affiliates rather than investing directly in the United States.

However, over the past decade, the Netherlands Antilles' share of total FDIUS has declined substantially. Its current-dollar position has remained fairly constant since 1984, while its real share of total FDIUS has declined from 7 percent in 1982 to 2 percent in 1991. This downtrend can be partly explained by the elimination of U.S. withholding taxes on interest payments to foreigners in 1984, which largely nullified the Netherlands Antilles' unique tax advantage.

Table 2.—Top 10 Countries with Largest Foreign Direct Investments in the United States, 1991

	Millions of dollars	Percent of total
All countries	**407,577**	**100**
Top 10 countries	371,927	91
United Kingdom	106,064	26
Japan	86,658	21
Netherlands	63,848	16
Canada	30,002	7
Germany	28,171	7
France	22,740	6
Switzerland	17,594	4
Australia	6,626	2
Sweden	5,597	1
Belgium/Luxembourg	4,627	1
Netherlands Antilles [1]	7,948	2

1. See footnote 5 in the text.

Transitional factors

Differences in average yields.—During much of the last decade, average yields on investments in the top 10 investor countries were below those in the United States (table 3). Between 1982 and 1989, the average real rate of return on total invested capital—debt and equity combined—was 6.6 percent in these countries, compared with 7.3 percent in the United States. The average yield on debt in these countries was 4.8 percent, compared with 6.3 percent; the average yield on equities was 7.6 percent, compared with 7.8 percent.

Table 3.—Rates of Return in the United States and in the Top 10 Investor Countries

[Percent]

	Average in the United States			Average in the top 10 investor countries		
	1982–91	1982–89	1990–91	1982–91	1982–89	1990–91
Real long-term interest rate [1]	5.9	6.3	4.3	4.8	4.8	5.0
Earnings/price ratio [2]	7.3	7.8	5.4	7.4	7.6	6.7
Average total return [3]	6.8	7.3	5.0	6.5	6.6	6.1

1. Data for individual countries were obtained from International Monetary Fund publications; these data have been weighted by their share of the FDIUS intercompany debt payable position for the top 10 countries.
2. Data for foreign countries were obtained from Morgan Stanley Capital International, *Perspective* (various issues), and for the United States from Standard and Poor's Corporation, *The Analysts Handbook* (various issues); the foreign country data have been weighted by their share of the FDIUS equity position for the top 10 countries.
3. For the United States and the top 10 investor countries, average total returns are a weighted average of the real long-term interest rate and the earnings/price ratio, with the real long-term interest rate receiving a 35-percent weight and the earnings/price ratio receiving a 65-percent weight. These weights represent the typical financial structure of countries that value their debt/equity ratios at market value.

FDIUS Foreign direct investment in the United States

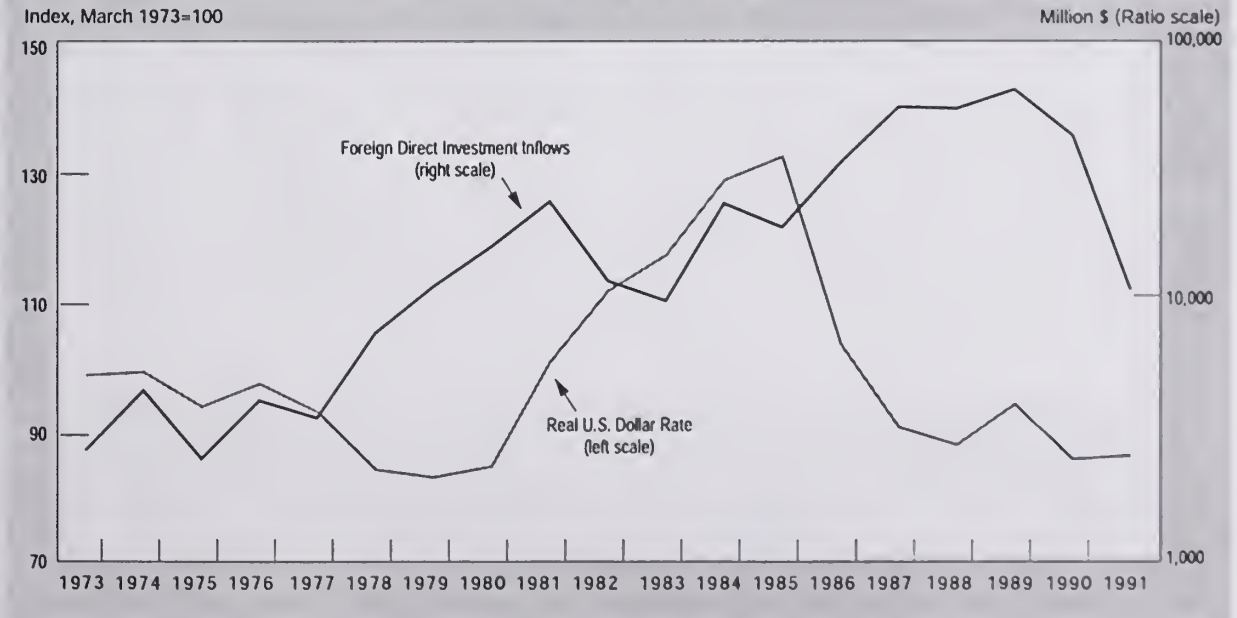
For several of these major investor countries, the difference between returns on direct equity investments was substantial. For example, Japanese investors received an average yield of 6.5 percent on their equity FDIUS between 1983 and 1989, compared with a yield of 2.8 percent on Japanese equities. Thus, returns on Japanese investments in the United States raised Japanese investors' aggregate yields, even though they were lower than the all-U.S.-business average.

Depreciation of the dollar.—A second and more important factor increasing FDIUS in the 1980's was the decline in the value of the U.S. dollar. In the latter half of the 1980's, the real value of the dollar declined 35 percent, and foreign firms more than doubled their direct investment position. This surge in FDIUS was similar to one that occurred between 1975 and 1980, when the dollar depreciated about 15 percent and FDIUS more than tripled.

In the latter half of the 1980's, overseas investors presumably believed that the dollar was undervalued and that future returns to dollar-denominated direct investments would be well above their current values. U.S. firms' assets looked undervalued to those who believed that the dollar was below its long-run equilibrium and purchasing-power-parity value. Although it is difficult to determine the long-run equilibrium value for the dollar, a number of indicators

CHART 1

Real U.S. Dollar Rate and Foreign Direct Investment Inflows



supported the view of investors who believed the dollar was undervalued. For example, observed differences in real asset prices—such as those between Japanese and U.S. real estate and stock market investments—as well as estimates of the purchasing power of the dollar and of relative U.S. unit labor costs, suggested the dollar was undervalued.[6] As chart 1 shows, the surges in FDIUS in both the late 1970's and the late 1980's occurred when the dollar was below its 1973 value, which may be regarded as a rough indicator of the dollar's equilibrium value.

Rates of return on new direct investments.—The combined effects of higher relative rates of return on investments in the United States and the depreciation of the dollar made U.S. returns look particularly attractive to overseas companies that had increased profits from sales to U.S.

6. According to Organisation for Economic Co-operation and Development estimates of purchasing-power parity, the dollar was undervalued by roughly 19 percent against the currencies of the major industrialized economies in 1990. Estimates by the Federal Reserve Board indicated that U.S. unit labor costs were roughly 15 percent below those of the other major industrialized countries. For a different perspective on the effect of the dollar on FDIUS, see Graham and Krugman, *Foreign Direct Investment*, 44–47 and 80–82.

Table 4.—Rate of Return on Assets of U.S. Companies in Year Prior to Foreign Acquisition Compared With All U.S. Nonfinancial Corporations

[Percent]

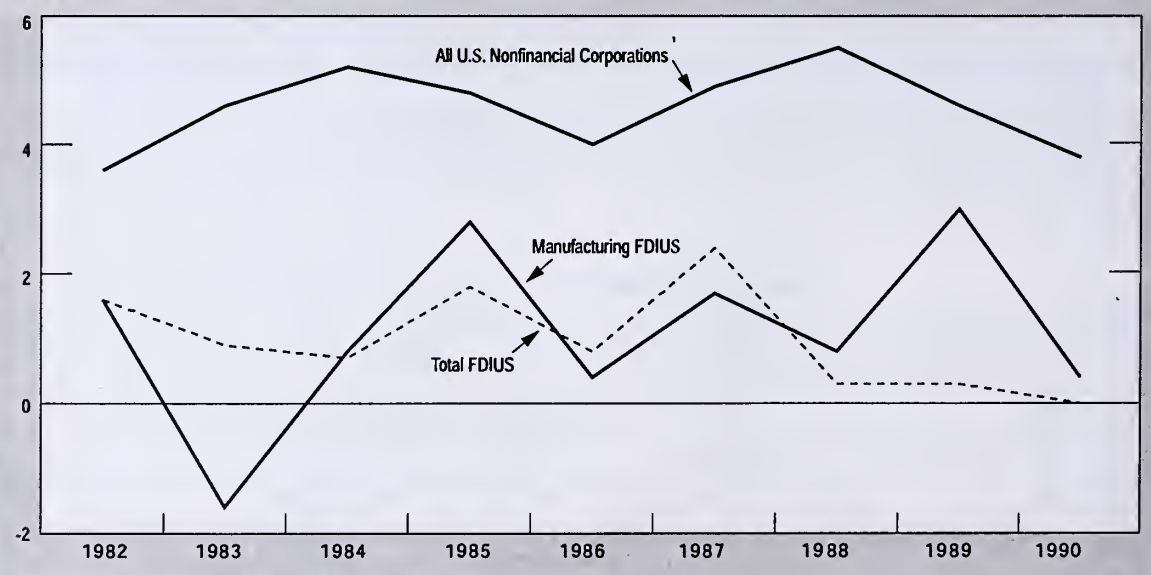
	1982	1983	1984	1985	1986	1987	1988	1989	1990
Foreign direct investment in the United States:									
Total	1.6	0.9	0.7	1.8	0.8	2.4	0.3	0.3	0
Manufacturing	1.6	–1.6	.8	2.8	.4	1.7	.8	3.0	.4
All U.S. nonfinancial corporations [1]	3.6	4.6	5.2	4.8	4.0	4.9	5.5	4.6	3.8

1. Income is measured as total receipts less total deductions after total net tax liability, as published by the Internal Revenue Service. Total receipts less total deductions, after taxes, have been adjusted to remove foreign source income and to add the part of the capital consumption adjustment in the national income and product accounts that adjusts for consistent accounting at historical cost. Total assets is that published by the Federal Reserve Board in *Balance Sheets for the U.S. Economy, 1960–91;* the published totals have been adjusted to exclude claims on foreign affiliates. In this measure of total assets, tangible assets are valued at historical cost, and claims on other nonfinancial corporations are excluded.

NOTE.—Rate of return is measured as net income to total assets.

CHART 2

Rate of Return on Assets of U.S. Companies in Year Prior to Foreign Acquisition Compared With All U.S. Nonfinancial Corporations



FDIUS - Foreign direct investment in the United States

1. This measure is the ratio of total receipts less total deductions after total net tax liability as published by the Internal Revenue Service to total assets for all U.S. nonfinancial corporations. Total receipts less total deductions after taxes have been adjusted to remove foreign source income and to add the part of the capital consumption adjustment in the national income and product accounts that adjusts for consistent accounting at historical cost. The measure of total assets used in this ratio is that published by the Federal Reserve Board in *Balance Sheets for the U.S. Economy, 1960-91;* the published totals have been adjusted to exclude claims on foreign affiliates. In this measure of total assets, tangible assets are valued at historical cost, and claims on other nonfinancial corporations are excluded.

U.S. Department of Commerce, Bureau of Economic Analysis

markets and had thereby accumulated substantial cash reserves. For these firms, increasing their U.S. presence through direct investment was attractive from an investment as well as an operations perspective. The combination of these factors may even have encouraged companies abroad to buy financially distressed U.S. companies as long-term investments. Presumably, foreign companies either believed that they could turn their U.S. investments around over time by using their expertise in product development, process technology, and management, or they believed that they could achieve higher returns from an appreciation of the dollar.

During the 1980's, about three-fourths of all FDIUS was for acquiring existing companies, and about one-fourth was for establishing new companies. For the companies established, rates of return were low or negative because of the startup costs that all new firms experience. For the companies acquired, rates of return were already low or negative: Between 1982 and 1990, the rate of return on assets for U.S. companies in the year before their acquisition by foreigners was 1.0 percent, compared with 4.6 percent for all U.S. nonfinancial companies (table 4, chart 2).[7] In addition, the foreign owners' newly acquired companies not only began with below-average returns, but presumably these returns were lowered further as owners restructured these companies by investing in new plant and equipment and in modernization of older plants, by writing-off and closing obsolete units, by increasing marketing efforts, and by aggressively pricing their products to regain market share.

Recent developments.—By 1990, many of the transitional factors that had encouraged direct investment in the United States were no longer present. Other countries' current-account surpluses with the United States were reduced. Multinational companies needed to reduce debt and rebuild their balance sheets, and their bankers needed to limit credit and meet higher capital standards. At the same time, the relative real rates of return on investments were reversed, as U.S. real interest rates and returns to equities decreased in relation to those abroad (table 3). In late 1990 and early 1991, the slide in the value of the dollar stopped, and its value began to increase, which raised the cost to foreign investors of new direct investments in the United States. These developments combined to produce a sharp drop in FDIUS from $67.8 billion in 1989 to $11.5 billion in 1991.

With the slowdown in new FDIUS, the rates of return on existing FDIUS should rise as these investments mature. Rates of return on USDIA have shown this pattern, and there is some evidence that rates of return on FDIUS have tended to rise over time as well.[8] However, long-term factors may continue to hold down FDIUS rates of return.

Long-term factors

Vertical integration.—One fundamental reason for foreign companies to make direct investments in other countries is to achieve vertical integration.[9] Owning both "upstream" raw material and production facilities and "downstream" distribution outlets may make it easier to further penetrate foreign markets. Through U.S. affiliates, foreign parent companies can better design, manufacture, distribute, and service products for the special requirements of the U.S. market. Either through resale of the foreign parent's products by their U.S. affiliates or through sales of the parent's products as inputs to the affiliates, increased sales of the parent's products can achieve economies of scale in home-country production, resulting in lower unit production costs for their products.

Besides company affiliation, U.S. affiliates of foreign multinational companies cite other reasons for relying on imports from the parent company, including product quality, assured sources of supply, and specialized product needs. Presumably, vertical integration and maximizing total company profits also play a role. Whatever the reasons, foreign-owned affiliates do have a higher propensity to import than do U.S. multinational companies in the United States. Imports by U.S. affiliates of foreign multinationals accounted for 24 percent of their total purchases of inputs in 1987, compared with 8 percent for U.S. multinational companies (table 5). Part of the higher propensity to import is explained by the practice of using U.S. affiliates mainly as distribution outlets. Overall, U.S. affiliates' imports for

7. For the most recently published data on U.S. companies in the year before their acquisition by foreign parents, see "U.S. Business Enterprises Acquired or Established by Foreign Direct Investors in 1991," SURVEY 72 (May 1992): 69–79.

8. For a discussion of the increase in returns with age on USDIA in manufacturing affiliates, see L.A. Lupo, Arnold Gilbert, and Michael Liliestedt, "The Relationship Between Age and Rate of Return of Foreign Manufacturing Affiliates of U.S. Manufacturing Parent Companies," SURVEY 58 (August 1978): 60–66. For a general discussion of the effect of age on profitability, see F.M. Scherer, *Industrial Market Structure and Economic Performance*, 3rd edition (Boston: Houghton Mifflin Company, 1990): 172–174.

9. For a general discussion of vertical integration as a motivation for foreign direct investment, see Richard E. Caves, "The Multinational Enterprise as an Economic Organization," in *Multinational Enterprise and Economic Analysis* (Cambridge: Cambridge University Press, 1983): 15–24 and 95, and Scherer, *Industrial Market Structure*, 94–96 and 109–111.

resale as a share of their total sales was 15 percent in 1987; for several direct investors, the share was much higher (table 6).

With a vertically integrated company, the profits resulting from economies of scale can be allocated among the parent and its affiliates in order to maximize total returns. Such decisions can affect rates of return on individual investments. For example, a company that requires access to a scarce raw material may accept a lower rate of return on its "upstream" investments in mining because such access will raise its global profits. Alternatively, a company may accept lower returns on its "downstream" operations because, through vertical integration, it can raise total sales and take advantage of economies of scale and technological efficiencies that raise its total profits.

Taxes.—Differences in tax treatment across countries can significantly affect both the location of direct investment and, through "transfer pricing," the distribution of profits between parent and affiliate.[10] If the effective tax rate on the domestic income of the foreign parent is lower than that on the income earned by the U.S. affiliate, the company can raise its total return by shifting income from the affiliate to the parent. This is achieved through use of transfer prices for transactions between the affiliate and its parent, whereby the company raises the price of exports to the affiliate and lowers the price of imports from the affiliate.

In table 7, effective tax rates on income from investments in U.S. affiliates are compared with those on income from domestic investments for the top 10 foreign investor countries (as before, excluding the Netherlands Antilles). Computations of effective tax rates are subject to considerable uncertainty and are sensitive to the assumptions made regarding such variables as inflation and the financing mix. However, the rates in table 7, which are derived from a recent study on effective tax rates by the Organisation of Economic Co-operation and Development (OECD), show that foreign parents in all but one of the 10 major investor countries may have an incentive to transfer income from their U.S. affiliates to themselves.[11]

Avoidance of tariffs and nontariff barriers.—Tariffs and nontariff barriers raise the cost of exports and provide an incentive for for-

10. For further discussion of the use of transfer pricing between parent and affiliate to reallocate income for tax purposes, see Graham and Krugman, *Foreign Direct Investment*, 82–83; and Mohammad F. Al-Eryani, Pervaiz Alam, and Syed H. Akhter, "Transfer Pricing Determinants of U.S. Multinationals," *Journal of International Business Studies*, 3rd quarter, 1990: 409–425.

For more information on how effective tax rates affect the flow of investment to domestic or foreign locations, see Joel Slemrod, "Tax Effects on Foreign Direct Investment in the United States: Evidence from a Cross-Country Comparison," in *Taxation in the Global Economy*, Assaf Razin and Joel Slemrod, eds., (Chicago: The University of Chicago Press, 1990): 79–122; and Kan H. Young, "The Effects of Taxes and Rates of Return on Foreign Direct Investment in the United States," *National Tax Journal* (March 1988): 109–121.

11. See OECD, *Taxing Profits in a Global Economy: Domestic and International Issues* (Paris: OECD, 1991).

Table 5.—Operating Characteristics of Foreign Direct Investment in the United States

Operating characteristic	1977	1987
Vertical integration (ratio of gross product to sales):		
Parents of U.S. multinationals	37	37
U.S. affiliates of foreign multinationals	18	21
Propensity to import for inputs (ratio of imports to total purchases of inputs):		
Parents of U.S. multinationals	9	8
U.S. affiliates of foreign multinationals	27	24
Local content (ratio of local inputs to sales):		
Parents of U.S. multinationals	95	95
U.S. affiliates of foreign multinationals	79	81

Source: U.S. Department of Commerce, Bureau of Economic Analysis; Council of Economic Advisers.

Table 6.—U.S. Affiliate Imports for Resale as a Share of Total Sales, 1987

[Percent]

All countries	**14.7**
Top 10 countries:	
Japan	33.9
Sweden	21.6
Germany	18.9
Switzerland	11.1
Belgium/Luxembourg	8.7
Canada	5.3
France	4.7
United Kingdom	3.6
Netherlands	3.1
Australia	2.3

NOTE.—Imports and sales are identified by country of foreign parent.

Table 7.—Effective Tax Rates on Income from Investments in U.S. Affiliates Compared With Domestic Investments, January 1991

	Effective tax rate for income from:		Ratio of effective tax rate for investment in U.S. affiliate to effective tax rate for domestic investment
	Investment in U.S. affiliate	Domestic investment	
Australia	44	43	1.03
Belgium	43	24	1.78
Canada	53	49	1.08
France	46	38	1.22
Germany	46	23	2.00
Japan	56	49	1.14
Luxembourg	40	40	.98
Netherlands	40	30	1.34
Sweden	48	30	1.62
Switzerland	38	25	1.51
United Kingdom	38	37	1.04
United States	44	44	1.00

NOTE.—The effective tax rate is calculated as the difference between the return before corporate taxes that is required to generate a 5-percent return before personal taxes, and the return after both corporate and personal taxes divided by the return before corporate taxes. The results are based on the following assumptions: Investment financing includes one-third each from intercompany debt, new equity, and reinvested earnings; the source of funds for financing is from the parent's home country; inflation is at a 4.5-percent annual rate; and the top tax rate is used for personal income.

Source: Organisation for Economic Co-operation and Development, *Taxing Profits in a Global Economy: Domestic and International Issues*. Paris, 1991, tables 5.4, 5.8, and 5.11.

eigners to invest abroad.[12] In recent years, direct investments in the U.S. auto industry were presumably related to actual and potential restrictions on vehicle exports to the United States. In addition, direct investment in several industries—televisions, typewriters, semiconductors, and automobiles—may have been related to antidumping suits and antidumping duties against foreign producers of these products. In these cases, the motive for direct investment may be to avoid tariffs and nontariff barriers in order to maximize total company returns, rather than to maximize returns on the direct investment. For example, a foreign manufacturer can avoid antidumping duties by exporting parts and components, on which there is no duty, for final assembly by the U.S. affiliate, rather than exporting the finished product, on which antidumping duties would be levied.

Importance of country-specific factors

The complex interrelationship among the factors that have caused rates of return to be lower for FDIUS than for all U.S. businesses is perhaps best demonstrated by an examination of the direct investment activities of companies from different countries. This section contrasts the activities of the two largest investor countries—Japan and the United Kingdom (table 8). Together, these two countries accounted for nearly one-half of the FDIUS position on a historical-cost basis in 1991. In 1982, the United Kingdom had the largest position, and it maintained that standing during the 1980's; Japan had the fifth largest position in 1982 and the second largest position at the end of the 1980's.

In terms of Japan's rates of return and the factors that have driven these returns, Japanese FDIUS was typical of FDIUS as a whole during the last decade. Large current-account surpluses in the 1980's in combination with relatively low rates of return in Japan led to large flows of direct investment capital from Japanese companies that were seeking higher returns in the United States. Low rates of return for U.S. companies in the year prior to their acquisition, along with high restructuring costs after acquisition, led to low earnings by affiliates of Japanese parents. Vertical integration, indicated by U.S. affiliates' heavy reliance on imports for immediate resale, and practices related to vertical integration, such as transfer pricing, further depressed returns on direct investment.[13] Effective tax rates on the domestic income of Japanese parents were lower than those on the income of their U.S. affiliates, which created an incentive to shift profits from the United States to Japan. Finally, tariffs and nontariff barriers, such as Voluntary Restraint Agreements (VRA's) and antidumping suits and duties, may have induced Japanese companies to substitute assembly and production plants in the United States for final goods exports from Japan.

By contrast, for British FDIUS, rates of return and the factors that have driven these returns are largely *dissimilar* to those for all FDIUS. Throughout the 1980's, the United Kingdom maintained only small current-account surpluses and had higher-than-average expected rates of return at home. Although the flow of direct investment from the United Kingdom during this period was the largest in absolute terms, from 1983 to 1991 new flows accounted for a much smaller percentage of the direct investment position of the United Kingdom than that for Japan. Thus, while British investors probably also bought some low-return U.S. companies and encountered similarly high restructuring costs, these low returns would have been more than offset by higher returns on the United Kingdom's larger stock of more mature investments. A primary example of a mature investment is the British investment in petroleum, which has a diversified structure within the United States that includes both upstream and downstream activities. Investment in this industry has boosted the overall British

12. For a discussion of how foreign direct investment is motivated by the desire to avoid tariffs and nontariff barriers, see "Strengthening GATT Antidumping Rules," *Economic Report of the President* (Washington, DC: U.S. Government Printing Office, 1992): 219; and U.S. Congress, *U.S. Trade Restraints: Effects on Foreign Investment*, report prepared by James K. Jackson (Washington, DC: Library of Congress, 1989).

Table 8.—Financial and Tax Factors Affecting Japanese and British Direct Investment in the United States

[Percent]

	Top 10 countries	Japan	United Kingdom	All U.S. businesses
Real long-term interest rate: [1]				
Average for 1982–91	4.8	4.6	4.5	5.9
Average for 1986–91	4.6	4.1	4.0	4.8
Earnings/price ratio: [2]				
Average for 1982–91	7.4	3.0	8.7	7.3
Average for 1986–91	6.9	2.3	8.3	6.5
Effective tax rates, January 1991: [3]				
Investment in U.S. affiliates	45	56	38	44
Domestic investments	38	49	37	44

1. See footnote 1 to table 3.
2. See footnote 2 to table 3.
3. Source is same as that for table 7. Effective tax rates for individual countries have been weighted by their share of the FDIUS total position for the top 10 countries.

13. Heavy reliance on imports for immediate resale by U.S. affiliates of Japanese parents and, more generally, all U.S. affiliates' substantial dependence on imports for use in production, probably also contributed to reductions in rates of return from 1985–87 because of the steep depreciation of the dollar.

rate of return; in contrast, Japanese investment in wholesale trade—typically a more downstream activity—has held down the overall Japanese rate of return. In addition, effective tax rates in the United Kingdom are comparable with those on British investments in the United States, producing little incentive for profit shifting. Finally, imports from the United Kingdom have not generally been in industries subjected to VRA's or other nontariff barriers, thus creating no incentive for earning less than the profit-maximizing return on direct investment.

Alternative Frameworks for U.S. International Transactions

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THIS ARTICLE presents alternative measures of U.S. international sales and purchases of goods and services that combine information on cross-border trade with information on sales and purchases abroad by U.S.-owned foreign companies and on sales and purchases in the United States by foreign-owned U.S. companies. The article explains and evaluates two previously suggested measures based on ownership, introduces a new residency-based measure, relates these measures—each of which is derived from its own distinct framework—to standard balance of payments measures, and illustrates them with experimental estimates derived from the most recent Bureau of Economic Analysis (BEA) data.

The new residency-based measure introduced in this article combines the standard balance on trade in goods and services between residents and nonresidents of the United States (cross-border trade) with a measure of the net effect on the U.S. economy of the operations of U.S.-owned companies abroad and of foreign-owned companies in the United States. Like the balance on cross-border trade, the new measure identifies international transactions on the basis of residence, but it presents a different picture of the U.S. position in world markets:

- Under this new measure, the net balance of the United States on its global sales and purchases of goods and services was a surplus of $24 billion in 1991, compared with a deficit of $28 billion on cross-border trade alone (table 1).
- From 1981 to 1991, the surplus under this measure rose from $8 billion to $24 billion, whereas the deficit on cross-border trade alone rose from $16 billion to $28 billion.
- In contrast to its effects on balances, this measure has little effect on U.S. shares of world export markets. From 1981 to 1991, the U.S. share of world exports under the new measure rose from 14 percent to 15 percent; in comparison, the U.S. share of cross-border exports of goods and services rose from 12 percent to 14 percent. During the same period, the U.S. share of world imports rose from 13 percent to 14 percent under both the new measure and the measure based on cross-border trade alone.

This new residency-based measure builds upon previous efforts to integrate information on cross-border trade with information on international direct investment. Alternative frameworks suggested by a National Academy of Sciences (NAS) study panel and by DeAnne Julius use ownership rather than residency as the basis for identifying international transactions. They, too, present a different picture of the U.S. position in world markets from that obtained from analysis of cross-border trade alone:

- The NAS proposal—which is perhaps more reflective than standard balance of payments measures of the way companies view their worldwide sales—indicates a net U.S. sales surplus of $164 billion. In deriving this measure, affiliates' purchases of goods and services from foreigners are deducted from their sales, but their payments to foreign capital and labor are not. Consequently, the surplus under this proposal should be viewed more as an indicator of the globalization of the activities of multinational companies—the sales effectively controlled by U.S.- and foreign-owned firms—than as an indicator of the effects of these activities on the U.S. and foreign economies.
- The Julius proposal indicates a net U.S. sales surplus of $24 billion, the same figure produced by the new residency-based measure. Although based on ownership, the framework proposed by Julius results in the same balance as the residency-based alternative because in determining the balance, *all* payments by affiliates to foreigners are netted out; however, they are included in the gross trade flows rather than being deducted from sales as in the residency measure.

Table 1.—A Comparison of U.S. International Economic Performance Under Different Frameworks, 1991

[Billions of dollars]

	Residency-based frameworks		Ownership-based frameworks	
	Cross-border trade in goods and services	Alternative residency-based approach, including both cross-border trade and net sales through affiliates (table 4) [1]	National Academy of Sciences proposal (table 2) [2]	Julius proposal (table 3) [3]
U.S. sales to foreigners	581	632	816	2,523
U.S. purchases from foreigners	609	608	652	2,499
Balance	-28	24	164	24

1. Table 4 sources: Sales, line 1; purchases, line 14; balance, line 27.
2. Table 2 sources: Sales, sum of lines 5 and 17; purchases, sum of lines 10 and, with sign reversed, 23; balance, line 24.
3. Table 3 sources: Sales, line 1; purchases, line 15; balance, line 29.

Overview

Although cross-border exports and imports remain the variables of primary interest for conducting macroeconomic analysis of output and employment in a country, there is growing recognition that sales through foreign affiliates must be considered in conjunction with these traditional balance of payments variables in order to obtain a complete picture of the global business activity of a country and of the role its multinational companies and their foreign affiliates play in delivering goods and services to international markets. For U.S. multinational companies, an overwhelming majority of sales to unaffiliated foreigners are effected through affiliates: In 1991, for example, about 85 percent of total sales to unaffiliated foreigners by U.S. parent companies and their majority-owned foreign affiliates took the form of sales by affiliates, and only about 15 percent were direct exports by the parents. Information on sales through affiliates is particularly important for such purposes as supporting negotiations on trade and investment, monitoring the resulting agreements, and analyzing the global business activities of multinational companies.

In recognition of facts such as these, a study panel of the NAS, chaired by Robert E. Baldwin, has recommended that BEA develop an ownership-based supplement to the existing, residency-based balance of payments framework for the United States.[1] As envisioned by the panel, this supplement would measure U.S.-owned companies' and U.S. individuals' "net sales" to foreign-owned companies and foreign individuals. The net sales measure would cover both cross-border sales as defined for balance of payments purposes and sales through locally established direct investment enterprises (net of certain overseas expenses and excluding sales between entities with the same country of ownership). As explained later, the balances produced under this supplement differ from those under the standard, residency-based framework; they should be viewed as indicators of activities effectively controlled by U.S.- and foreign-owned firms, rather than, as in the standard balance of payments, as indicators of returns to domestic versus foreign factors of production from these activities. (The NAS supplement, like the other frameworks discussed in this article, confines itself to current-account transactions in goods and services and to transactions involving direct investment. It does not include information on other current-account transactions (specifically, unilateral transfers and income on portfolio investment), nor does it attempt to construct ownership-based measures of capital-account transactions.)

Prior to the NAS proposal, a somewhat different ownership-based framework was proposed by DeAnne Julius.[2] Julius' proposal is similar to the NAS proposal in that it explicitly identifies and separately tabulates sales and purchases of direct investment enterprises. However, it dif-

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1. National Research Council, Panel on Foreign Trade Statistics, *Behind the Numbers: U.S. Trade in the World Economy*, ed. Anne Y. Kester (Washington, DC: National Academy Press, 1992). See especially chapter 1 ("Supplementing the Balance of Payments Framework") and Appendix A ("Sales and Purchases of Goods and Services Between Americans and Foreigners").

2. DeAnne Julius, *Global Companies and Public Policy: The Growing Challenge of Foreign Direct Investment* (New York, NY: Council on Foreign Relations Press, 1990).

fers in its method of recording transactions and in its definition of local expenses. Also unlike the NAS proposal, Julius' proposal produces a net sales balance equal to the sum of the balances on goods, services, and direct investment income as conventionally measured.

Considerable interest in alternative accounting frameworks for trade in goods and services has also arisen outside the United States. A working party of the Industry Committee of the Organisation for Economic Co-operation and Development and professional staff at the Statistical Office of the European Communities (EUROSTAT) are studying the collection and preparation of ownership-based data. In both cases, information on sales through direct investment enterprises, sometimes referred to as "establishment trade," is viewed in conjunction with information on cross-border trade flows.

Although applicable to both goods and services, the concepts reflected in these proposals are particularly important for many types of services—such as advertising, engineering, legal, and other services—that are difficult, and sometimes virtually impossible, to deliver to foreign markets through cross-border trade.[3] For most of these business, professional, and technical services, delivery typically must take the form of face-to-face transactions adapted to local laws, customs, and needs. As a result, with a few exceptions (travel and transportation are the largest), services tend to be delivered internationally mainly through direct investment enterprises located in the country of the purchaser rather than through cross-border transactions between residents and nonresidents.

After briefly explaining standard methods of accounting for direct-investment-related activity, this article reviews the NAS and Julius proposals for supplementing the balance of payments framework, illustrates them using the most recent BEA data available, and then introduces and illustrates an alternative measure that provides additional information on ownership while retaining the concept of residency as its fundamental organizing principle.[4] By retaining the residency concept, this new measure also maintains consistency with internationally recognized standards for measuring production and determining its location, and it maintains the focus of attention on the effects of direct investment activities on the U.S. economy rather than shifting the focus to measurement of the relative performance of U.S.- and foreign-owned firms.

Although these frameworks are different methodologically, they each explicitly record sales totals for direct investment enterprises that, together with the totals for cross-border trade, can be used to analyze the worldwide operations of multinational companies and the channels they use to deliver goods and services to international markets. Each of the proposals should be viewed as potentially supplementing, rather than supplanting, the existing balance of payments accounts, which are integrated with the national income accounts and are needed for macroeconomic analysis of the effect of international transactions on the domestic economy. There may be some basis for viewing the new measures, along with the conventional trade measures, as indicators of the ability of a country's companies to compete in world markets; however, it should be kept in mind that the performance of specific groups of firms, although important, may be overshadowed in the determination of these measures by broader macroeconomic factors, such as exchange rates, differences in rates of economic growth, and differences between rates of saving and investment in the United States and abroad. Furthermore, a trade surplus or deficit, however defined, is not necessarily indicative of success or failure in world markets: For example, in a country with national saving that is insufficient to finance its domestic investment, a deficit may merely reflect the transfer of resources into the country to finance the shortfall of saving (or the excess of spending over production).

The proposals discussed in this article should be regarded as experimental rather than definitive, inasmuch as none of them is completely free of conceptual difficulties. The same can be said of the accompanying estimates shown in tables 1–4: Not all of the data that would be needed to construct ideal estimates are now available, and for the purposes of this article, it was not possible to make some adjustments that probably would be desirable in a formal, ongoing series. Because the regular production of high-quality estimates of international trans-

3. For the last 4 years, BEA has provided detailed information on both cross-border services transactions and on sales of services through affiliates in the September SURVEY OF CURRENT BUSINESS. The two types of information have not, however, been integrated into a formal framework along the lines discussed here.

4. An earlier proposal for compiling balance of payments transactions on an ownership basis should also be acknowledged: Evelyn Parrish Lederer, Walther Lederer, and Robert L. Sammons, *International Services Transactions of the United States: Proposals for Improvement in Data Collection*, a report prepared for the Departments of State and Commerce and the Office of the U.S. Trade Representative (Washington, DC, 1982). This proposal was narrower in purpose than the two that are discussed here, however, in that it was designed to account for international business only in specific types of services rather than to provide a comprehensive framework.

actions on an alternative basis would require substantial resources and the resolution of several significant data and conceptual problems, BEA has no current plans to produce such estimates on an ongoing basis. Rather, it is hoped that this article will stimulate discussion of the issues involved and illustrate what can be accomplished with currently available information.

Standard balance of payments accounts

Traditionally, balance of payments accounts have included the cross-border trade of direct investment enterprises with their country of ownership and with other foreign countries. They have not, however, recorded the sales or purchases by these enterprises, or "affiliates," in their country of location, although these sales and purchases do affect the balance of payments in the sense that they are among the determinants of direct investment income and may affect cross-border exports and imports indirectly.[5] The exclusion of local sales by affiliates follows from the purpose of the accounts—to record transactions between residents and nonresidents, with a view to providing information needed to measure the level and geographic location of production and to gauge pressures on foreign-currency markets—and from the usual procedure of regarding an affiliate as a resident of its country of location, not of its country of ownership. Thus, a foreign investor's receipt of income from an affiliate—consisting of reinvested earnings plus interest and dividends—is considered an international transaction, to be recorded by the investor country as a receipt of factor income from abroad and by the host country as a payment of factor income to foreigners; an affiliate's gross sales in its country of location, in contrast, are regarded as transactions occurring wholly within a single country and, thus, are not to be recorded in the balance of payments of either the investor country or the host country.

With respect to measures of aggregate economic activity, none of the activity of an affiliate is recorded in the gross domestic product (GDP) of the investor country, inasmuch as that aggregate measures only production occurring within the country and excludes any production attributable to enterprises located abroad, even if domestically owned. However, the direct investor's share of an affiliate's profits (after deduction of foreign income taxes) is included in the gross national product (GNP) of the investor country, inasmuch as that aggregate measures all production attributable to domestically supplied factors of production, irrespective of the location of production. By the same reasoning, an affiliate's production is included in the GDP of its host country, but the direct investor's share of its profits is excluded from the host country's GNP. Goods and services produced for export are uniformly included in both the GDP and GNP of the exporting country, irrespective of the destination of the exports, the exporting firm's country of ownership, and the affiliation, if any, between exporter and importer; similarly, imported goods and services are uniformly excluded from the GDP and GNP of the importing country.[6]

National Academy of Sciences proposal

As indicated earlier, the NAS study panel proposed an ownership-based measure of net U.S. sales to foreigners.[7] This innovative proposal views international transactions from the perspective of the worldwide operations of multinational companies and provides comparable measures of international business activities of U.S.- and foreign-owned firms, whether conducted through cross-border trade or through local sales by affiliates. Because the proposal focuses on the global sales of multinational companies, it is helpful in assessing *U.S.-owned businesses'* shares of foreign markets. In many respects, its view of trade is more reflective of the view held by companies and official trade representatives in developing international trade policy and assessing U.S. trade performance than one covering cross-border trade alone. The NAS proposal also has been instrumental in stressing the need to develop additional information on ownership relationships and on the methods used by multinational companies to service international markets.

In presenting its proposal, the NAS panel defined the term "foreigners" to include U.S. affiliates of foreign companies and to exclude foreign

5. The description given here is consistent with current methodology for compiling the U.S. international transactions accounts, with the new, fifth edition of the International Monetary Fund's *Balance of Payments Manual*, and with the 1993 revision of the international System of National Accounts. The balance of payments items that would not be affected by the adoption of one of the frameworks discussed in this article—capital flows, income on portfolio investments, and unilateral transfers—are not described here.

6. Exports may embody imported goods and services, but in computing GDP and GNP, an adjustment is made to subtract them from exports or other gross product components (consumption, investment, and government spending) in which they may be embodied, so that only the portion of exports representing domestic production remains in the total.

7. In *Behind the Numbers*, this measure is termed "net sales by Americans to foreigners." In this article, some measures defined by others have been redesignated in order to reduce ambiguity and, insofar as possible, to permit the use of consistent nomenclature within the article and among it, other SURVEY articles, and other BEA publications.

affiliates of U.S. companies. This definition follows from the NAS measure's ownership-based perspective: U.S. affiliates are regarded as foreigners because, although resident in the United States, they are foreign owned, and foreign affiliates are not regarded as foreigners because, although resident abroad, they are U.S. owned.

The net sales measure can be derived as the sum of three items: Net U.S. cross-border sales to foreigners by domestically owned companies, net sales to foreigners by foreign affiliates of U.S. companies, and net U.S. sales to U.S. affiliates of foreign companies.

Net U.S. cross-border sales to foreigners by domestically owned U.S. companies is computed in three steps. First, U.S. exports to foreign affiliates of U.S. companies and exports by U.S. affiliates of foreign companies are subtracted from total U.S. exports of goods and services to obtain an estimate of cross-border exports by domestically owned U.S. companies to foreigners.[8] Second, imports from foreign affiliates of U.S. companies and imports by U.S. affiliates of foreign companies are subtracted from total U.S. imports to obtain an estimate of cross-border imports by domestically owned U.S. companies from foreigners. Third, the import measure is subtracted from the export measure to produce net cross-border sales to foreigners by domestically owned U.S. companies.

Net sales to foreigners by foreign affiliates of U.S. companies is computed in two steps. First, sales by foreign affiliates to the United States and to other foreign affiliates of U.S. companies are subtracted from their total sales.[9] Second, local (non-U.S.) purchases of goods and nonfactor services by foreign affiliates of U.S. companies are subtracted from the result of step one to obtain net sales to foreigners by foreign affiliates of U.S. companies.

Net U.S. sales to (or if negative, as is the case, purchases from) U.S. affiliates of foreign companies is computed in two steps. First, sales by U.S. affiliates of foreign companies to other U.S. affiliates and to other countries are subtracted from their total sales.[10] This total is then subtracted from U.S. affiliates' purchases of goods and nonfactor services in the United States to obtain net U.S. sales to U.S. affiliates of foreign companies.

These computations are detailed in table 2 and are summarized and compared with balance of payments statistics in table 1. Using the standard balance of payments framework, the United States recorded a $28 billion deficit in trade on goods and services in 1991. Using the NAS net sales measure, in contrast, the United States had a positive sales balance of $164 billion, as positive balances on cross-border transactions and on transactions by foreign affiliates of U.S. companies were only partly offset by a negative balance on transactions by U.S. affiliates of foreign companies.[11]

Conceptual issues.—As noted earlier, the NAS proposal is helpful in assessing *U.S.-owned businesses'* shares of foreign markets. In the late 1980's and early 1990's, Robert E. Lipsey and the late Irving B. Kravis, using BEA data on multinational-company operations, conducted a series of studies showing that although the U.S. share of cross-border merchandise trade around the globe had declined, U.S. multinational companies' share—whether through companies located in the United States or located abroad—had changed little.[12] Like the Lipsey and Kravis approach, the NAS proposal focuses on the global sales of multinational companies; however, by considering local as well as cross-border sales by affiliates, it does so in a more comprehensive way.

Although the net sales measure is useful for assessing companies' sales performance in global markets and can provide insights into the important linkages between international trade and investment activities and the domestic economy, it may give misleading signals if used to gauge the effect of changes in foreign affiliates' sales on domestic income and employment. It is too gross a measure for most country-level macroeconomic analyses because it does not align a country's sales

8. Exports by the relatively small number of U.S. affiliates of foreign companies that have foreign affiliates of their own are subtracted twice in this computation, once as exports to foreign affiliates and once as exports by U.S. affiliates. The NAS panel was aware of the need for an adjustment to add back these exports, so that they are, in effect, only subtracted once, but it lacked the data needed to incorporate such an adjustment in its estimates. BEA has since identified the duplication and, in updating the NAS estimates, adjusted for it (table 2, line 4). A similar adjustment is reflected in the derivation of the ownership-based import measure (line 9).

9. Available data for sales to other foreign affiliates cover only sales to other affiliates of the same U.S. parent company.

10. Data on U.S. affiliates' sales to other U.S. affiliates are not available.

11. The attribution of balances to different groups of transactors may be less precise than is suggested by this statement or by the organization of table 2. For cases in which a cross-border sale is followed by a resale by an affiliate, credit for the sale is, in effect, accorded to the affiliate; yet, in many, if not most, such cases, the affiliate is merely an intermediary that facilitates sales by the cross-border exporter. For a discussion of the role of U.S. affiliates in facilitating the distribution of goods produced by their foreign parent companies, see "Merchandise Trade of U.S. Affiliates of Foreign Companies," SURVEY 73 (October 1993): 52–65.

12. See the following articles by Robert E. Lipsey and Irving B. Kravis: "The Competitive Position of U.S. Manufacturing Firms," *Banca Nazionale del Lavoro Quarterly Review* 153 (June 1985): 127–54; "The Competitiveness and Comparative Advantage of U.S. Multinationals, 1957–84," *Banca Nazionale del Lavoro Quarterly Review* 161 (June 1987): 147–65; and "Sources of Competitiveness of the United States and Its Multinational Firms," *Review of Economics and Statistics* 64 (May 1992): 193–201. See also Mangus Blomström and Robert E. Lipsey, "The Export Performance of U.S. and Swedish Multinationals," *Review of Income and Wealth* 35 (September 1989): 245–64.

with the use of only those factors of production that are either entirely located in (as with GDP) or owned by (as with GNP) residents of the country. This result follows from the fact that in deriving net sales, purchases of goods and services from foreigners are deducted from sales, but payments to foreign capital and labor are not. By not excluding payments to these foreign factors of production, a country's net sales to foreigners may reflect substantial payments that do not accrue to its own workers or investors.

Although some value added by an affiliate—specifically, its parent's share in its profits—is attributable to factors of production of the parent's country, most of it usually will be attributable to labor and other factors of production obtained in the affiliate's host country (or in some cases, in other countries). In 1991, for example, the U.S. content of the output of U.S. affiliates of foreign companies (value added plus local purchases) was 84 percent, and the foreign content of the output of foreign affiliates of U.S. com-

Table 2.—National Academy of Sciences Proposal

[Millions of dollars]

Line		1991
	U.S. cross-border sales to, and purchases from, foreigners:	
	Exports to foreigners:	
1	U.S. cross-border exports of goods and services, residence basis	581,197
2	*Less*: Exports to foreign affiliates of U.S. companies [1]	139,976
3	*Less*: Exports by U.S. affiliates of foreign companies [1]	108,434
4	*Plus*: Exports by U.S. affiliates to their foreign affiliates (included in both lines 2 and 3)	8,449
5	*Equals*: U.S. cross-border exports of goods and services, ownership basis	341,236
	Imports from foreigners:	
6	U.S. cross-border imports of goods and services, residence basis	609,117
7	*Less*: Imports from foreign affiliates of U.S. companies [1]	108,789
8	*Less*: Imports by U.S. affiliates of foreign companies [1]	186,945
9	*Plus*: Imports by U.S. affiliates from their foreign affiliates (included in both lines 7 and 8)	4,699
10	*Equals*: U.S. cross-border imports of goods and services, ownership basis	318,082
11	**Net U.S. cross-border sales of goods and services to foreigners, ownership basis (lines 5 – 10)**	**23,154**
	Sales and purchases by foreign affiliates of U.S. companies:	
12	Sales by foreign affiliates of U.S. companies	1,543,450
13	*Less*: Sales by foreign affiliates to other foreign affiliates of U.S. companies	246,208
14	*Less*: Sales to the United States by foreign affiliates of U.S. companies (line 7)	108,789
15	*Equals*: Sales by foreign affiliates to unaffiliated foreigners	1,188,453
16	*Less*: Local (non-U.S.) purchases of goods and nonfactor services by foreign affiliates of U.S. companies	713,394
17	**Net sales to foreigners by foreign affiliates of U.S. companies (lines 15 – 16)**	**475,058**
	U.S. sales to, and purchases from, U.S. affiliates of foreign companies:	
18	Local purchases of goods and nonfactor services by U.S. affiliates of foreign companies (U.S. sales)	731,530
19	Sales by U.S. affiliates of foreign companies	1,174,069
20	*Less*: Sales by U.S. affiliates to other U.S. affiliates of foreign companies	n.a.
21	*Less*: U.S. exports by U.S. affiliates of foreign companies (line 3)	108,434
22	*Equals*: Sales by U.S. affiliates to unaffiliated U.S. persons	1,065,635
23	**Net U.S. sales to U.S. affiliates of foreign companies (lines 18 – 22)**	**–334,105**
24	**Net sales by U.S. persons to foreigners (lines 11 + 17 + 23)**	**164,107**
	Addenda:	
	Value added abroad by foreign affiliates of U.S. companies and local (foreign) content of output:	
25	Sales by foreign affiliates of U.S. companies (line 12)	1,543,450
26	*Less*: Local (non-U.S.) purchases of goods and nonfactor services by foreign affiliates (line 16)	713,394
27	*Less*: Exports from the United States (line 2)	139,976
28	*Less*: Purchases from other foreign affiliates of U.S. companies (line 13)	246,208
29	*Plus*: Inventory change	–980
30	*Equals*: Value added by foreign affiliates of U.S. companies	442,891
31	Foreign content of foreign-affiliate output (lines 26 + 28 + 30)	1,402,494
	Value added in the United States by U.S. affiliates of foreign companies and local (U.S.) content of output:	
32	Sales by U.S. affiliates of foreign companies (line 19)	1,174,069
33	*Less*: Local (U.S.) purchases of goods and nonfactor services by U.S. affiliates (line 18)	731,530
34	*Less*: Imported goods and services (line 8)	186,945
35	*Less*: Purchases from other U.S. affiliates of foreign companies	n.a.
36	*Plus*: Inventory change	2,776
37	*Equals*: Value added by U.S. affiliates of foreign companies	258,370
38	U.S. content of U.S.-affiliate output (lines 33 + 35 + 37)	989,900

n.a. Not available.

1. Services transactions exclude, but conceptually should include, transactions with unaffiliated foreigners.

NOTE.—In this table, "foreigners" is defined from an ownership perspective, thus, it encompasses U.S. affiliates of foreign companies but does not encompass foreign affiliates of U.S. companies.

panies was 91 percent. In contrast to the NAS measures, the standard measures of exports and imports of goods, services, and income do align a country's sales with factor location or ownership, as do supplemental measures, such as the one proposed by Julius, that treat affiliates' locally obtained factor services as "purchases" by the investor country.

Because it does not explicitly measure the effect on the domestic economy of differences in the location of production, the net sales measure cannot serve as an indicator of the effect on national income of increases in multinational companies' sales. For instance, the effect on the U.S. economy of additional sales of Opel automobiles in Germany by General Motors' German subsidiary is already recorded in the standard balance of payments accounts as investment income earned by General Motors (GM) and as any additional exports by GM of parts and components to the subsidiary. Payments made by GM's affiliate to local suppliers and employees directly affect the German economy, not the U.S. economy. Any impact on the U.S. economy would be indirect, through the transmission of business cycles, and presumably much smaller than the direct impact on the host economy. As another example, given the high labor content in legal, engineering, and other professional services, the U.S. economy is affected by whether Fluor decides to "produce" engineering and design services for a construction project in Stuttgart at its headquarters in Irvine, California, or through its affiliate located in Germany.

Another reason the net sales measure cannot serve as an indicator of the effects of multinational-company activity on the domestic economy is that it does not take into account differences in ownership shares. Because U.S. companies' direct ownership shares of foreign affiliates may range from 10 to 100 percent, only a portion of the total profits earned by foreign affiliates accrues to U.S. parent companies and thus adds to U.S. national income.[13] An extra dollar of sales through a foreign affiliate that is wholly owned clearly adds more to U.S. national income (and to the U.S. direct investor's profits) than an extra dollar of sales through an equally profitable affiliate that is only 50-percent owned; the net sales method, however, gives equal weight to increases in the sales of all foreign affiliates, irrespective of the percentage of foreign ownership.[14]

Empirical issues.—Inclusion in an ownership-based framework of sales by affiliates that are not majority owned may cause double-counting in global totals and problems in identifying other foreign affiliates. For example, consider the case of 10 companies from 10 different countries, participating equally in a joint venture. If each investor country were to record 100 percent of the "net sales" of the venture, the actual sales would be overstated by a factor of 10. The NAS panel recognized this problem and considered two possible methods of addressing it: (1) Prorating transactions by ownership percentages, and (2) restricting transactions to be recorded on an ownership basis to only those involving majority-owned affiliates.[15] Perhaps the second method is the better choice, because it allows the presentation of comparable measures (that is, sales) for both cross-border transactions and transactions through foreign affiliates. This method would be consonant with U.S. generally accepted accounting principles, which stipulate that only majority-owned affiliates are to be included in companies' consolidated financial statements. In addition, from a practical standpoint, even though majority-owned foreign affiliates are probably able to identify sales to other majority-owned affiliates, they may find it difficult to identify sales to minority-owned affiliates.

Another issue that ownership-based accounts must address concerns the determination of country of ownership. Some affiliates are part of an ownership chain extending across several countries; for such indirectly held affiliates, duplication can occur if their sales are attributed both to the country of ultimate beneficial owner and to the countries of intervening parents in the

13. For example, in 1991, net income generated by foreign affiliates of U.S. companies was $77 billion; only about two-thirds, or $51 billion, of this total accrued to U.S. owners.

14. Even if only majority-owned affiliates are brought under the net sales approach (which, as discussed in the next section, might be considered as a means of avoiding duplication), this problem still exists because this approach, unlike others discussed in this article, does not treat returns to locally supplied capital as a purchase or cost of the investor country.

15. Although the accompanying tables cover all nonbank affiliates rather than only those that are majority owned, restricting their coverage to majority-owned affiliates would have had only a limited effect, because most affiliates are majority owned. For U.S. direct investment abroad, majority-owned affiliates accounted for 79 percent of the sales by all nonbank affiliates and for 93 percent of the direct investment income receipts in 1989 (the only recent year for which direct investment income can readily be disaggregated on the basis of ownership percentages). For foreign direct investment in the United States, income payments cannot readily be broken down by ownership percentage, but the share of sales by U.S. affiliates in 1989 accounted for by majority-owned affiliates was, at 82 percent, about the same as the comparable share for foreign affiliates. If only data for majority-owned affiliates were recorded on an ownership basis, income from other affiliates would still need to be recorded, but through standard recording methods for direct investment income rather than through a separate tabulation of sales and expenses.

chain. It could be argued that to avoid such duplication, country of ownership should be based on country of ultimate ownership rather than on country of foreign parent.[16]

A final issue that may arise in connection with the ownership approach concerns the difficulty of identifying all transactions between affiliates that have the same country of ownership but different parent companies. Because many U.S. companies have followed their client companies overseas in order to service the clients' foreign operations, a certain proportion of what are described as net sales to foreigners by foreign affiliates of U.S. companies probably are, in reality, sales to foreign affiliates of other U.S. companies. Conceptually, these sales should be included in the deduction for sales to other foreign affiliates that is made in computing net sales to foreigners by foreign affiliates of U.S. firms. Similarly, sales between U.S. affiliates of different foreign companies should be included in the deduction from total sales by U.S. affiliates in computing net U.S. sales to U.S. affiliates of foreign companies. In reality, such sales usually cannot be identified or reported to BEA because in most cases, reporters do not know the country of ownership of all the companies with which they do business.

Julius proposal

Another ownership-based approach is suggested by the work of DeAnne Julius (see footnote 2). Julius' method is similar to the NAS approach in that it is based on ownership, but because it deducts *all* payments to foreigners in deriving net sales, it—like the residency-based approach presented next—avoids most of the conceptual and empirical difficulties just described, at least insofar as the computation of balances is concerned.[17]

Unlike the NAS proposal, the Julius proposal defines local purchases by affiliates to include not only payments for goods and nonfactor services purchased from outside vendors, but also payments for labor and other factors of production employed within the firm. Under this proposal, the foreign affiliate is treated not as a resident of the host country, as in the standard accounts, but rather as a part of the investor country's firm operating in the host country. The affiliate's transactions with the host country are recorded on a gross basis, reflecting the ownership boundary between the firm and the rest of the host economy. As has been noted elsewhere, this netting of all receipts from foreigners against all payments to foreigners results in a trade balance equal, conceptually, to the balance on goods and services plus the balance on direct investment income in the balance of payments.[18]

The second respect in which the Julius approach differs from that of the NAS panel is in the recording methodology. Whereas the NAS panel used what is sometimes referred to as a "directional" methodology, recording the net of sales and purchases separately for both inward and outward direct investment, Julius suggests recording transactions on what could be termed an "export/import" basis. On this basis, foreign affiliates' local purchases of goods and services are recorded as a component of sales by foreigners to the United States rather than as a deduction from total sales by foreign affiliates; similarly, U.S. affiliates' purchases in the United States are recorded as a component of U.S. sales to foreigners rather than as a deduction from total sales by U.S. affiliates. There are both advantages and disadvantages with this approach: It produces larger gross flows of sales and purchases than does the directional methodology followed by the NAS panel and thus depicts more completely the total magnitude of two-way transactions between U.S.- and foreign-owned entities; however, it makes it harder than under the directional methodology to isolate and analyze the transactions of companies grouped on the basis of ownership. From the standpoint of the overall U.S. trade (or sales) balance, it is immaterial which method of recording is selected, for the choice of method alone has no effect on the balance.

The correspondence between Julius' net foreign sales balance and the balance on goods and services plus the balance on direct investment income in the standard balance of payments accounts suggests that one way of viewing the Julius measure is as a more gross variant of the standard accounts. Whereas the balance of payments

16. The accompanying tables define the country of ownership to be the country of the first foreign parent rather than that of the ultimate beneficial owner. However, the effect of making an adjustment for cases in which U.S. parent companies were, in turn, ultimately owned by foreigners likely would have been small: In 1991, sales by such parents accounted for 11 percent of the sales by all U.S. parents, and their foreign affiliates accounted for only 4 percent of the sales by all foreign affiliates of U.S. companies. If sales by affiliates of such foreign-owned U.S. parents were removed from ownership-based measures of "U.S. sales," these parents' direct investment income receipts would still need to be recorded, but in the standard manner rather than through a separate tabulation of sales and expenses.

17. The major difficulty that the Julius proposal shares with the NAS proposal is the empirical problem of identifying the ultimate beneficial owner (UBO). BEA collects information on ultimate beneficial ownership and could conceivably produce adjusted estimates on a UBO basis, but, as noted, the benefits of such an adjustment likely would be small.

18. Guy V.G. Stevens, "The Net Foreign Sales Balance of DeAnne Julius," Board of Governors of the Federal Reserve System, staff memorandum, July 25, 1990.

accounts reflect the net effect of subtracting the affiliate's purchases from its sales—specifically, the parent's share in the affiliate's net income—the estimates constructed by Julius show the purchases and sales separately.

The results of applying the Julius method to data for 1991 are shown in table 3.[19] The table shows that in 1991, total U.S. sales to unaffiliated foreigners (with "foreigners" defined, as before, from an ownership perspective) were $2,523 billion, compared with total sales by foreigners to unaffiliated U.S. persons of $2,499 billion; thus, the United States had a positive sales balance of $24 billion in 1991. While this balance equals the sum of the standard balances on goods, services, and direct investment income, it is produced by estimates that provide a considerably more detailed picture of the gross flows that produce the balance and of the channels of delivery that companies use to service international markets.[20]

Alternative residency-based approach

As an alternative to producing ownership-based estimates, the standard balance of payments accounts can be recast to provide more information

19. It should be noted that in this table and in table 4, items labeled "costs and profits" accruing to U.S. or foreign persons are computed residually, as sales less direct investment income and less certain trade flows that can be identified as affiliates' purchases. To the extent that some of the trade flows recorded in a given period may represent capital goods or goods used in producing for inventory, neither of which may enter into the affiliate's cost of goods sold during that period, the trade-flow and "costs and profits" items must be interpreted simply as flows of funds rather than as an allocation of factor and nonfactor payments related to current production. Over time, however, capital goods are depreciated and inventories sold, and in any event, capital goods and goods used in producing for inventory probably account for a relatively small share of total trade; thus, on average, the labeling of the items likely provides a generally accurate representation of their nature. In any case, the net sales measure as shown in table 3 is correctly measured, irrespective of the fact that the true composition of some of the expense items may at times deviate from that shown.

20. The $24 billion figure differs slightly from that derived from BEA's quarterly balance of payments accounts because the estimates presented in this article exclude direct investment income from affiliates in banking (which are not covered by BEA's financial and operating data for affiliates) and exclude the current-cost adjustment to income.

Table 3.—Julius Proposal

[Millions of dollars]

Line		1991
1	**Sales by U.S. persons to foreigners (lines 2 – 3 + 7)**	**2,522,962**
2	**U.S. cross-border exports of goods and services**	**581,197**
3	***Less*: Direct-investment-related U.S. exports**	**239,961**
4	To foreign affiliates of U.S. companies	139,976
5	By U.S. affiliates of foreign companies	108,434
6	Adjustment to remove duplication of exports by U.S. affiliates to their foreign affiliates (included in both lines 4 and 5)	–8,449
7	***Plus*: Local sales to U.S. affiliates of foreign companies or by foreign affiliates of U.S. companies**	**2,181,726**
8	U.S.-affiliate purchases from, and profits accruing to, U.S. persons	993,273
9	Total sales by U.S. affiliates of foreign companies	1,174,069
10	*Less*: U.S. imports to U.S. affiliates	186,945
11	*Plus*: Adjustment to add back imports to U.S. affiliates from their foreign affiliates	4,699
12	*Less*: Sales to other U.S. affiliates	n.a.
13	*Less*: Net payment of profits to foreign parents from sales by U.S. affiliates	–1,450
14	Sales by foreign affiliates of U.S. companies to unaffiliated foreigners	1,188,453
15	**Sales by foreigners to U.S. persons (lines 16 – 17 + 21)**	**2,498,612**
16	**U.S. cross-border imports of goods and services**	**609,117**
17	***Less*: Direct-investment-related U.S. imports**	**291,035**
18	From foreign affiliates of U.S. companies	108,789
19	To U.S. affiliates of foreign companies	186,945
20	Adjustment to remove duplication of imports to U.S. affiliates from their foreign affiliates (included in both lines 18 and 19)	–4,699
21	***Plus*: Local sales by U.S. affiliates of foreign companies or to foreign affiliates of U.S. companies**	**2,180,530**
22	U.S.-affiliate sales to unaffiliated U.S. persons	1,065,635
23	Foreign-affiliate purchases from, and profits accruing to, foreigners	1,114,895
24	Total sales by foreign affiliates of U.S. companies	1,543,450
25	*Less*: U.S. exports to foreign affiliates	139,976
26	*Plus*: Adjustment to add back exports by U.S. affiliates to their foreign affiliates	8,449
27	*Less*: Sales to other foreign affiliates	246,208
28	*Less*: Net receipts of profits by U.S. parents from sales by foreign affiliates	50,820
29	**Net sales by U.S. persons to foreigners (lines 1 – 15)**	**24,350**
	Addenda:	
30	Net U.S. cross-border exports (lines 2 – 16)	–27,920
31	Standard balance on goods, services, and direct investment income (equals line 29)	24,350

n.a. Not available.

NOTE.—In this table, "foreigners" is defined from an ownership-based perspective; thus, it encompasses U.S. affiliates of foreign companies but does not encompass foreign affiliates of U.S. companies.

Sales are designated as "local" based on whether they occur in the United States or in all other countries combined. Thus, "local" sales to foreigners by a foreign affiliate of a U.S. company, for example, include sales to all foreign (non-U.S.) persons, not just sales to persons in the affiliate's country of location.

on ownership. In so doing, the varied needs of data users can be met without giving up the linkage to economic activity in specific economies and the integration with broader national accounts that are among the virtues of standard balance of payments accounts. Table 4 shows one such reconfiguration. It retains the standard measures of cross-border trade in goods and services, and its key measure of activity by affiliates is conceptually equivalent to the conventional measure of direct investment income.[21] However, it separately records a number of details that show the data from a new perspective and that allow a more complete analysis of ownership relationships and of the scope and importance of intrafirm trade than is allowed by the conventional presentation.

In the estimates shown in table 4, as in the standard balance of payments and in the NAS proposal, the results of affiliates' activities in their countries of location are recorded on a "directional" basis: Net receipts by U.S. companies resulting from the operations of their foreign affiliates are recorded as a component of U.S. sales (exports) to foreigners, and net receipts by foreign companies resulting from the operations of their U.S. affiliates are recorded as a component of U.S. purchases (imports) from

21. Minor variances from the figures published in the U.S. balance of payments accounts exist for the reasons noted in footnote 20.

Table 4.—Alternative Residency-Based Approach

[Millions of dollars]

Line		1991
1	**U.S. exports (sales) (lines 2 + 7)**	**632,017**
2	**U.S. cross-border exports of goods and services, total**	**581,197**
3	To unaffiliated foreigners	412,066
4	To affiliated foreigners	169,131
5	To foreign affiliates of U.S. companies	122,127
6	To foreign parents of U.S. affiliates	47,004
7	**U.S. companies' net receipts from sales by their foreign affiliates**	**50,820**
8	Sales by foreign affiliates	1,543,450
9	*Less:* Foreign-affiliate purchases of goods and services from the United States	139,976
10	*Less:* Costs and profits accruing to foreigners	1,106,446
11	Employee compensation	196,979
12	Other	909,467
13	*Less:* Sales by foreign affiliates to other foreign affiliates	246,208
14	**U.S. imports (purchases) (lines 15 + 20)**	**607,667**
15	**U.S. cross-border imports of goods and services, total**	**609,117**
16	From unaffiliated foreigners	379,212
17	From affiliated foreigners	229,905
18	From foreign affiliates	89,558
19	From foreign parents	140,347
20	**Foreign companies' net receipts from sales by their U.S. affiliates**	**–1,450**
21	Sales by U.S. affiliates	1,174,069
22	*Less:* U.S. affiliate-purchases of goods and services from abroad	186,945
23	*Less:* Costs and profits accruing to U.S. persons	988,574
24	Employee compensation	173,911
25	Other	814,663
26	*Less:* Sales by U.S. affiliates to other U.S. affiliates	n.a.
27	**Net U.S. exports (imports) (lines 1 – 14)** [1]	**24,350**
28	Net cross-border exports (lines 2 – 15)	–27,920
29	Net receipts from sales by affiliates (lines 7 – 20)	52,270
	Addenda:	
	Composition of the content of foreign-affiliate sales (to nonaffiliates):	
30	Output sold to nonaffiliates or added to inventory, total (lines 8 – 13 plus inventory change)	1,296,262
31	Foreign content [2]	1,156,286
32	Value added by foreign affiliates of U.S. companies	442,891
33	Other foreign content	713,394
34	U.S. content (line 9)	139,976
	Composition of the content of U.S.-affiliate sales (to nonaffiliates):	
35	Output sold to nonaffiliates or added to inventory, total (lines 21 – 26 plus inventory change)	1,176,845
36	U.S. content	989,900
37	Value added by U.S. affiliates of foreign companies	258,370
38	Other U.S. content	731,530
39	Foreign content (line 22)	186,945

1. Equals the balance on goods, services, and direct investment income in the standard balance of payments accounts. Also equals net sales by U.S. persons to foreigners under the Julius approach (table 3, line 29).

2. Differs from foreign content as shown in table 2, line 31 by the amount of purchases from other foreign affiliates (table 2, line 28). In this table, the output whose content is being decomposed is only that sold to nonaffiliates (or added to inventory); thus, sales between affiliates are excluded. Table 2, in contrast, shows a decomposition of total output, including that sold to other affiliates.

foreigners. Although equivalent to direct investment income, the "net receipts" terminology used in the presentation to represent the difference between affiliates' sales and purchases—each of which is also shown in the table—is more suggestive of the underlying operations that generate the income. In accordance with its residency basis, the presentation retains the standard measures of cross-border trade in goods and services; however, it separately identifies the portions of the total that are accounted for by intrafirm, or affiliated, trade. In addition, the account provides addenda that break down the content of foreign affiliates' output into its U.S. and foreign components and that show the extent to which the local content of affiliates' output is attributable to the affiliates' value added or to other local content, including returns to local investors.

This framework is consistent with the needs of traditional economic accounting and analysis and maintains the strict correspondence between output and the location or ownership of factors of production that exists in the standard accounts. By retaining the residency concept, it maintains consistency with internationally recognized standards for measuring production and determining its location, and it keeps attention focused on the effects of direct investment activities on the U.S. economy. However, it encourages the user of the international accounts to look beyond the information on cross-border trade alone and to recognize that the overseas operations of foreign affiliates constitute an integral part of the nation's economic interaction with the rest of the world. Indeed, direct investment income differs fundamentally from income on portfolio investments: It represents U.S. companies' returns on sales to foreigners that—for reasons such as efficiency, lower transport costs, or avoidance of trade barriers—are made from foreign instead of U.S. locations, whereas portfolio income merely represents returns to passive investments in foreign stocks and bonds.

The residency-based framework suggested here adds many details needed for such uses as supporting international trade negotiations and economic policies toward multinational companies and assisting with the analysis of these companies' global operations. The key summary measure from this framework—termed "net exports," but viewing exports in a sense broader than its usual meaning—combines the standard balance on cross-border trade in goods and services with the net receipts from sales by affiliates. In 1991, U.S. cross-border exports of goods and services were smaller than U.S. imports—$581 billion and $609 billion, respectively (table 4, lines 2 and 15), for a deficit on cross-border trade of $28 billion (line 28). However, net U.S. receipts from sales by foreign affiliates of U.S. companies were much larger than net foreign receipts from sales by U.S. affiliates of foreign companies—$51 billion and −$1 billion, respectively (lines 7 and 20), for a surplus on net receipts of $52 billion (line 29). Combining the cross-border trade with the net receipts related to sales by affiliates yields exports (in the broad sense mentioned above) of $632 billion (line 1), imports of $608 billion (line 14), and a net export, or sales, surplus of $24 billion (line 27).

The $24 billion surplus is identical to that obtained under the Julius approach, although the latter is derived as the net of much larger gross flows, reflecting its use of an "export/import" recording methodology rather than the "directional" methodology used here. The surplus is much smaller than the $164 billion produced by the measure suggested by the NAS panel. However, as discussed earlier, that measure, being geared more to analyzing production attributable to domestic- and foreign-based multinational *companies* than to analyzing production attributable to U.S.- and foreign-supplied *factors of production*, includes the returns to foreign-supplied factors of production in net U.S. sales to foreigners and includes the returns to U.S.-supplied factors of production in net foreign sales to the United States. This definitional difference, together with the fact that foreign affiliates of U.S. companies obtain more factor services abroad than U.S. affiliates of foreign companies obtain in the United States, accounts for the difference between the NAS balance and the balance from the alternative residency-based framework. Alternatively, the difference can be said to result from an excess of value added abroad (less direct investment income, which is included in both measures) by foreign affiliates of U.S. companies over value added in the United States (similarly adjusted) by U.S. affiliates of foreign companies.[22]

22. Lois Stekler, in comparing the NAS measure with the conventional trade balance, has made a similar observation:

> The net sales balance ... is approximately equal to the trade balance [on goods and services] plus the value added by U.S. direct investment abroad minus the value added by foreign direct investors in the United States. As long as the value added by U.S. businesses abroad is higher than the value added by foreign direct investors in the United States, the proposed measure will be more favorable than the traditional measure of the trade deficit.

See Lois E. Stekler, review of *Behind the Numbers*, *Journal of Economic Literature* 31 (September 1993): 1,461.

(As noted in the addenda to table 4, value added by U.S. affiliates of foreign firms in 1991 was $258 billion, while value added by foreign affiliates of U.S. firms was $443 billion.)

The gross flows under the alternative residency-based measure are smaller than both the estimates proposed by Julius and the NAS panel. However, the reason for the larger NAS flows is the omission from purchases of the payments to foreign capital and labor rather than, as in the case of the Julius approach, the gross recording of foreign affiliates' purchases in "imports" and of U.S. affiliates' purchases in "exports."

From 1981 to 1991, the U.S. surplus under the broadly defined net export measure rose from $8 billion to $24 billion, whereas the deficit on cross-border trade rose from $16 billion to $28 billion. Although in terms of balances, the new measure presents a significantly different picture from that presented by cross-border trade alone, in terms of shares in world totals, the differences are less significant, because income on direct investment is relatively small in comparison with cross-border trade in goods and services, both globally and for the United States. From 1981 to 1991, the U.S. share of world exports under this measure rose from 14 percent to 15 percent, while the U.S. share of world cross-border exports of goods and services rose from 12 percent to 14 percent.[23] From 1981 to 1991, the U.S. share of world imports rose from 13 percent to 14 percent both under the new measure and as measured by cross-border trade alone.

In addition to its usefulness in analyzing the economic effects on the United States of U.S. international sales and purchases of goods and services, whether effected through cross-border transactions or through sales by affiliates, the alternative framework can be used to derive other information that may be useful for specific purposes. For example, in addressing questions of market access, one might want to disregard local purchases by affiliates (which seldom would be subject to any sort of restriction) and ask what is the total of U.S. sales to unaffiliated foreigners. From table 4, this measure could be derived as the sum of cross-border exports to unaffiliated foreigners (line 3) and sales to unaffiliated foreigners by foreign affiliates of U.S. companies (line 8 minus the sum of lines 13 and 18). Total U.S. purchases from foreigners could be derived similarly. In addition, the framework could be built upon by incorporating subtotals and groupings of particular interest or new addenda lines; alternatively, auxiliary analytical tabulations could be developed.

23. The world totals used in deriving these shares are from International Monetary Fund, *Balance of Payments Statistics Yearbook* (Washington, DC: International Monetary Fund, various issues).

An Ownership-Based Disaggregation of the U.S. Current Account, 1982–93

By Obie G. Whichard and Jeffrey H. Lowe

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WITH THE growing integration of the world economy, foreign direct investment has flourished, and the multinational company (MNC) has become a major force in the delivery of goods and services to overseas markets. Interest in analyzing foreign trade from the perspective of MNC's has grown accordingly. In response, BEA has prepared a supplemental disaggregation of the U.S. current account along ownership lines by combining information from its direct investment surveys with information from the standard current account. The new disaggregation builds on a proposal introduced in an earlier BEA study of alternative balance-of-payments frameworks. It presents information on the sales by MNC's through their affiliates as well as through cross-border trade. By viewing the activities of MNC's and their affiliates in the context of a formal economic accounting framework, these activities can be analyzed in a more consistent fashion than previously was possible.

This new disaggregation, presented for 1982–93, breaks down cross-border trade according to whether it is between affiliated parties—that is, within MNC's—or between unaffiliated parties. Trade within MNC's ("intrafirm trade") is further disaggregated according to whether it is between U.S. parent companies and their foreign affiliates or between U.S. affiliates of foreign companies and their foreign parent groups. In addition, details on receipts and payments of direct investment income are provided to show how the income is derived from the production and sales of affiliates.

The disaggregation of the current account presented here provides information not available in the standard disaggregation. The standard disaggregation breaks down cross-border trade in goods and services on the basis of the commodity classifications of the goods and services traded and the geographic location of the parties involved, but it generally does not indicate relationships between the exporters and importers. Nor does it show how production and sales by foreign affiliates give rise to income on direct investments.

In a previous SURVEY OF CURRENT BUSINESS article, BEA described and evaluated three frameworks that supplement the information on cross-border trade shown in the standard balance of payments accounts with information on sales and purchases abroad by the foreign affiliates of U.S. companies and on sales and purchases in the United States by the U.S. affiliates of foreign companies.[1] Two of the frameworks had been suggested earlier, one by a National Academy of Sciences study panel and one by DeAnne Julius. Both of these frameworks used ownership as the basis for determining the nationality of transactors and, thus, the boundary between domestic (U.S.) and international transactions. The third framework, introduced in the article, differed from the others in that—like the standard balance of payments accounts—it used residency rather than ownership to determine this boundary. By doing so, it retained the linkages to economic activity in specific economies provided by the standard balance of payments accounts. As with the other frameworks, however, it provided a number of new details that facilitate analyses of ownership relationships and of the scope and importance of intrafirm trade.

The present article focuses on the third framework and extends it in five ways: First, it places the ownership-based disaggregation of cross-border trade and net receipts or payments resulting from sales by affiliates, shown in the framework presented in the previous article, into the framework of the overall U.S. current account; second, it further breaks down the ownership-based components of cross-border trade into trade in goods and trade in services;[2]

1. See "Alternative Frameworks for U.S. International Transactions," SURVEY OF CURRENT BUSINESS 73 (December 1993): 50–61, which discusses technical issues pertaining to the three frameworks and presents estimates of U.S. sales and purchases under each framework for 1991.

2. For technical reasons, an acceptable estimate of this breakdown could not be made for net receipts resulting from sales by affiliates. One reason is that the data on affiliates' activities are classified according to the primary industry of the affiliate rather than according to the type of good or service

third, it records net receipts or payments resulting from sales by affiliates on a current-cost, rather than on a historical-cost, basis; fourth, it shows data for affiliates in banking for the first time (though without the detail provided for nonbanks); and fifth, it presents estimates for the period 1982–93 rather than for only 1 year.

The following are among the patterns that emerge when the current account is viewed along ownership lines. Many of these patterns confirm or reinforce the conclusions of earlier BEA analyses of affiliate operations.

- Transactions within MNC's accounted for a significant share—about one-third—of both U.S. exports and U.S. imports of goods and services throughout 1982–93. Intrafirm trade accounted for a growing share of U.S. imports of goods and services—37 percent in 1993, compared with 32 percent in 1982—reflecting the rapid rise in foreign direct investment in the United States during the late 1980's. However, much of this trade simply represented goods imported by U.S. wholesale trade affiliates established by foreign companies to facilitate the distribution of their goods, largely to unaffiliated customers, in the United States. The share of intrafirm trade in U.S. exports fluctuated somewhat, but it ended the 1982–93 period at the same level—30 percent—as it began.
- Trade in goods—rather than in services—accounted for the predominant share of both unaffiliated trade and intrafirm trade, but the share was higher for intrafirm trade. For exports, goods tended to account for about 85 percent of intrafirm trade, compared with about 70 percent of unaffiliated trade. For imports, the difference was even more marked, with goods tending to account for about 95 percent of intrafirm trade, compared with about 75 percent of unaffiliated trade. The higher share of goods in intrafirm trade partly reflects the absence of some types of services—such as travel and other services sold to individuals—from trade within firms.
- Both intrafirm exports and intrafirm imports of goods and services were largely accounted for by transactions in which affiliates were used as distribution channels for their parents' output (sometimes with further processing), rather than as sources of supply. Exports by U.S. parent companies to their foreign affiliates accounted for roughly two-thirds to three-quarters of total intrafirm exports, while imports by U.S. affiliates from their foreign parents accounted for 55–64 percent of total intrafirm imports.
- Direct investment income—that is, net returns to direct investors resulting from sales by their affiliates—was a small component of both total exports and total imports of goods, services, and income: 7–9 percent of exports and less than 2 percent of imports. The particularly low import share largely reflects the low returns foreigners have realized on their direct investments in the United States.
- All account balances—that on the overall current account and those on various groupings of its components—were more negative at the end of 1982–93 than at the beginning. However, the balance on goods, services, and net receipts resulting from sales by affiliates was more favorable than the others in every year since 1985. This balance, which shows the net result of all active participation of companies in international markets (that is, through both cross-border trade and sales by affiliates), went from a $2.2 billion deficit in 1982 to an $18.5 billion deficit in 1993. By comparison, the deficit on cross-border trade alone increased from $24.2 billion to $74.8 billion during the same period. The difference between the two balances is attributable to the sizable surplus throughout the period on net receipts and payments resulting from sales by affiliates.
- Notwithstanding the importance of affiliates as distribution channels for their parents' output, most of the content of affiliates' sales is of local (or, for foreign affiliates, non-U.S) origin: 88–92 percent of the content of the output of foreign affiliates originated abroad, and 80–84 percent of the output of U.S. affiliates originated in the United States. Most of the local content represented payments for locally procured inputs.

The remainder of this article consists of four sections and a technical note. The first section describes in more detail the differences between the ownership-based disaggregation and the standard disaggregation of the U.S. current account. The second section explains the structure of the ownership-based disaggregation. The third sec-

sold. Another is that some of the income from a given affiliate may reflect the affiliate's earnings that are derived from its ownership of other affiliates in different industries. Similar considerations preclude a geographic breakdown of the ownership-based presentation: In some cases, income from one country may partly derive from the operations of indirectly owned affiliates located in other countries.

tion reviews patterns of transactions, focusing particularly on changes in composition during 1982–93. The fourth section discusses the derivation of net receipts or payments resulting from sales by affiliates and the origin of the content of affiliates' sales. The technical note provides details on the sources and methods used for making the estimates.

Ownership-Based and Standard Disaggregation Compared

The ownership-based disaggregation of the U.S. current account presented in this article covers the same transactions as those in the standard current account, but it provides a different way of viewing the information. Perhaps its main distinguishing characteristic is its grouping of cross-border transactions in goods and services on the basis of the relationship between importers and exporters rather than on the basis of the types of goods and services traded. Information on whether these transactions are in goods or in services is provided, but as a secondary breakdown.

Another distinguishing characteristic concerns the information provided on direct investment income. Whereas the standard disaggregation simply shows the income itself—the end result, from the direct investor's perspective, of the activities of its affiliates—the disaggregation introduced here adds detail on the sales, expenses, and other deductions from sales that, taken together, determine the income. To highlight the link between direct investment income and the activities that produce it, this income, for purposes of the presentation, is redesignated as net receipts or payments resulting from sales by affiliates.

A third distinguishing characteristic of the ownership-based disaggregation is the inclusion of a balance on cross-border trade and net receipts resulting from sales by affiliates as a memorandum item. This balance, like any balance on groups of transactions, may be subject to different interpretations; however, it highlights two facts: Cross-border trade and sales through foreign affiliates both represent methods of active participation in international markets for goods and services, and both may be contrasted with the more passively generated income on portfolio investment and the fundamentally different types of transactions recorded under unilateral transfers.

Finally, the presentation provides addenda to show the source of the content of both foreign and U.S. affiliates' sales (other than to affiliates of the same parent). For both types of affiliates, output sold (or added to inventory) is broken down between U.S. and foreign content. For foreign affiliates of U.S. companies, foreign content is further broken down between the affiliates' own value added and other foreign content; for U.S. affiliates of foreign companies, the U.S. content is similarly broken down. These content measures do not enter the current account, but rather complement the information used to derive net receipts and payments resulting from sales by affiliates.

Structure of the Ownership-Based Disaggregation

At its highest level, the ownership-based disaggregation of the current-account is identical to the standard disaggregation. Specifically, it is broken down into three components: Exports of goods, services, and income; imports of goods, services, and income; and net unilateral transfers (table 1). At the next level of disaggregation, however, the breakdown is quite different from the standard one. Exports and imports of goods, services, and income are first disaggregated into two categories: (1) U.S. receipts or payments from cross-border trade and net receipts or payments resulting from sales by affiliates and (2) other income receipts or payments. The first category—which records the results of activities involving direct participation by enterprises in the production or sale of goods and services—is further disaggregated into U.S. cross-border exports or imports of goods and services and net receipts or payments resulting from sales by affiliates. Each of these categories is, in turn, disaggregated in a unique manner.

Cross-border transactions in goods and services are disaggregated to show transactions with unaffiliated foreigners separately from intrafirm transactions. For intrafirm transactions, a further disaggregation breaks down transactions into those between U.S. parent companies and their foreign affiliates (that is, intrafirm trade related to U.S. direct investment abroad) and those between U.S. affiliates and their foreign parents (intrafirm trade related to foreign direct investment in the United States). Separate estimates of trade in goods and trade in services are provided for each of these categories.

For net U.S. receipts resulting from sales by foreign affiliates, separate estimates are provided

Table 1.—Ownership-Based Disaggregation of the U.S. Current Account, 1982–93

[Billions of dollars]

Line		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
1	**Exports of goods, services, and income**	361.4	351.3	395.9	382.7	401.8	449.5	560.4	642.0	697.4	716.2	737.4	763.8
2	**Receipts resulting from cross-border exports and sales by foreign affiliates**	299.2	293.1	322.4	319.6	341.8	388.4	483.4	544.9	595.9	633.4	670.9	706.2
3	**Cross-border exports of goods and services, total**	275.2	266.1	291.1	289.1	309.9	348.7	431.4	489.5	537.1	581.2	619.0	644.6
3a	Goods	211.2	201.8	219.9	215.9	223.3	250.2	320.2	362.1	389.3	416.9	440.4	456.8
3b	Services	64.1	64.3	71.2	73.2	86.5	98.5	111.1	127.4	147.8	164.3	178.6	187.8
4	To unaffiliated foreigners	193.3	183.9	196.5	189.7	212.3	246.8	306.5	342.5	382.4	413.2	431.9	452.4
4a	Goods	139.0	129.8	136.1	128.2	140.4	164.7	214.4	238.4	261.5	277.6	285.8	298.6
4b	Services	54.3	54.0	60.3	61.6	72.0	82.1	92.1	104.1	120.9	135.6	146.3	153.8
5	To affiliated foreigners (intrafirm exports)	81.9	82.2	94.6	99.4	97.5	101.9	124.9	147.0	154.7	168.0	187.1	192.2
5a	Goods	72.2	72.0	83.8	87.8	83.0	85.5	105.8	123.7	127.6	139.3	154.8	158.2
5b	Services	9.8	10.3	10.8	11.6	14.8	16.4	19.1	23.3	26.9	28.7	32.3	33.9
6	To foreign affiliates of U.S. companies	55.4	58.0	65.6	71.3	72.7	79.7	95.4	109.2	112.5	120.6	131.4	138.4
6a	Goods	47.1	49.4	56.7	61.9	61.1	66.4	79.4	89.4	90.1	97.1	106.0	111.1
6b	Services	8.3	8.6	8.9	9.5	11.6	13.3	16.0	19.7	22.4	23.5	25.4	27.4
7	To foreign parent (group) of U.S. affiliates	26.5	24.3	29.0	28.0	24.9	22.2	29.4	37.8	42.2	47.4	55.7	53.7
7a	Goods	25.0	22.6	27.1	25.9	21.9	19.1	26.4	34.3	37.6	42.2	48.8	47.2
7b	Services	1.5	1.7	1.9	2.1	3.0	3.1	3.0	3.5	4.5	5.1	6.9	6.6
8	**U.S. companies' net receipts resulting from sales by their foreign affiliates**	23.9	27.0	31.3	30.5	32.0	39.6	52.1	55.4	58.7	52.2	51.9	61.6
9	Nonbank affiliates	20.5	23.9	28.4	28.6	30.6	39.3	50.3	55.1	58.4	51.9	49.7	57.8
10	Sales by foreign affiliates	935.8	886.3	898.6	895.5	928.9	1,052.8	1,194.7	1,284.9	1,493.4	1,541.6	1,574.1	1,573.9
11	*Less:* Foreign affiliates' purchases of goods and services from the United States	65.0	66.1	75.3	79.1	82.6	92.2	110.9	122.3	128.6	138.8	147.4	156.4
12	*Less:* Costs and profits accruing to foreigners	726.8	673.3	672.6	664.5	680.6	759.8	847.5	914.5	1,072.3	1,105.4	1,112.5	1,102.0
13	Employee compensation	111.7	102.8	100.7	102.4	117.6	136.1	151.5	165.8	184.6	196.1	201.5	201.8
14	Other	615.1	570.5	571.9	562.1	563.0	623.7	696.1	748.7	887.5	909.3	911.0	900.2
15	*Less:* Sales by foreign affiliates to other foreign affiliates of the same parent	123.4	123.0	122.4	123.3	135.1	161.5	185.9	193.0	233.9	245.4	264.5	257.7
18	Bank affiliates	3.4	3.1	2.9	2.0	1.4	0.4	1.8	0.2	0.4	0.3	2.2	3.7
17	**Other income receipts**	62.3	58.2	73.5	63.1	60.0	61.1	77.0	97.2	101.5	84.8	66.5	57.7
18	Other private receipts	58.2	53.4	68.3	57.6	53.6	55.8	70.3	91.5	91.0	76.8	59.4	52.6
19	U.S. Government receipts	4.1	4.8	5.2	5.5	6.4	5.3	6.7	5.7	10.5	8.0	7.1	5.1
20	**Imports of goods, services, and income**	355.8	377.6	474.2	484.0	528.5	592.7	662.5	719.8	756.7	732.5	766.8	829.7
21	**Payments resulting from cross-border imports and sales by U.S. affiliates**	301.3	328.1	408.9	418.2	456.5	508.9	558.4	587.4	620.0	607.2	658.7	724.7
22	**Cross-border imports of goods and services, total**	299.4	323.9	400.2	411.0	449.4	501.4	546.7	580.9	617.1	610.6	658.4	719.4
22a	Goods	247.6	268.9	332.4	338.1	368.4	409.8	447.2	477.4	498.3	490.5	536.5	589.4
22b	Services	51.7	55.0	67.7	72.9	81.0	91.7	99.5	103.5	118.8	119.6	122.0	130.0
23	From unaffiliated foreigners	204.0	221.6	272.7	270.8	296.2	326.2	351.4	366.6	388.0	382.3	413.7	453.9
23a	Goods	156.4	170.5	209.2	202.3	220.0	241.2	259.3	272.7	280.6	274.8	304.8	338.0
23b	Services	47.5	51.1	63.5	68.5	76.2	85.0	92.0	93.9	107.5	106.9	108.9	115.9
24	From affiliated foreigners (intrafirm imports)	95.4	102.3	127.5	140.1	153.3	175.2	195.3	214.3	229.1	228.3	244.8	265.5
24a	Goods	91.2	98.4	123.2	135.8	148.4	168.6	187.9	204.7	217.8	215.6	231.7	251.5
24b	Services	4.2	3.9	4.2	4.4	4.8	6.7	7.5	9.6	11.3	12.7	13.1	14.1
25	From foreign affiliates of U.S. companies	42.1	45.8	55.0	56.5	57.5	63.6	73.1	79.6	85.9	88.9	99.4	108.6
25a	Goods	39.3	43.6	52.8	54.0	55.0	60.4	69.5	74.7	80.3	83.5	93.9	102.9
25b	Services	2.8	2.2	2.2	2.4	2.5	3.2	3.6	4.9	5.6	5.4	5.5	5.9
26	From foreign parent (group) of U.S. affiliates	53.4	56.4	72.5	83.7	95.7	111.6	122.2	134.7	143.2	139.4	145.3	156.7
26a	Goods	51.9	54.8	70.5	81.7	93.4	108.2	118.4	129.9	137.5	132.2	137.8	148.5
26b	Services	1.4	1.6	2.0	1.9	2.3	3.4	3.9	4.8	5.8	7.3	7.5	8.2
27	**Net payments to foreign companies resulting from sales by their U.S. affiliates**	1.9	4.2	8.7	7.2	7.1	7.4	11.7	6.5	2.9	–3.4	.3	5.3
28	Nonbank affiliates	1.2	3.4	8.0	5.9	5.8	7.2	10.2	6.0	4.3	–3.0	.7	4.9
29	Sales by U.S. affiliates	518.1	536.6	593.6	633.0	672.0	744.6	886.4	1,056.6	1,175.9	1,185.9	1,232.0	1,302.1
30	*Less:* U.S. affiliates' purchases of goods and services from abroad	85.7	83.1	102.5	115.3	128.1	147.0	159.4	176.6	188.7	186.0	192.0	206.6
31	*Less:* Costs and profits accruing to U.S. persons	431.1	450.1	483.0	511.9	538.1	590.4	716.8	874.0	982.9	1,002.9	1,039.3	1,090.6
32	Employee compensation	61.5	66.8	73.2	79.9	86.5	96.0	119.6	144.2	163.6	176.0	182.1	190.3
33	Other	369.7	383.3	409.9	431.9	451.7	494.4	597.2	729.8	819.3	826.9	857.2	900.3
34	*Less:* Sales by U.S. affiliates to other U.S. affiliates of the same parent	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
35	Bank affiliates	.7	.8	.7	1.4	1.3	.2	1.5	5	–1.4	–.5	–.4	.4
36	**Other income payments**	54.5	49.5	65.3	65.9	72.0	83.9	104.1	132.4	136.7	125.3	108.0	105.0
37	Other private payments	35.2	30.5	44.2	42.7	47.4	57.7	72.4	94.0	95.7	83.6	67.5	63.4
38	U.S. Government payments	19.3	19.0	21.2	23.1	24.6	26.2	31.7	38.4	41.0	41.5	40.5	41.6
39	**Unilateral transfers, net**	–17.1	–17.7	–20.6	–23.0	–24.2	–23.1	–25.0	–26.1	–33.4	6.9	–32.1	–34.1
	Memoranda:												
40	Balance on goods and services	–24.2	–57.8	–109.1	–121.9	–139.6	–152.7	–115.3	–91.4	–80.0	–29.4	–39.5	–74.6
41	Balance on goods, services, and net receipts resulting from sales by affiliates	–2.2	–35.0	–86.5	–98.5	–114.6	–120.5	–74.9	–42.5	–24.1	26.2	12.1	–18.5
42	Balance on goods, services, and income	5.6	–26.3	–78.4	–101.3	–126.7	–143.2	–102.1	–77.7	–59.3	–14.3	–29.4	–65.8
43	Balance on current account	–11.4	–44.0	–99.0	–124.2	–150.9	–166.3	–127.1	–103.8	–92.7	–7.4	–61.5	–99.9
	Addenda:												
	Source of the content of nonbank foreign affiliates' sales (except to other foreign affiliates of the same parent):												
44	Output sold or added to inventory, total (line 10 minus line 15 plus the change in inventories)	802.9	746.7	773.7	779.0	800.9	908.1	1,019.4	1,094.2	1,277.0	1,294.6	1,304.1	1,308.4
45	Foreign content	737.9	680.6	698.5	699.9	718.2	815.9	908.4	971.9	1,148.2	1,156.0	1,156.6	1,152.1
46	Value added by foreign affiliates of U.S. companies	286.7	272.1	276.1	280.4	298.8	348.2	383.1	403.1	440.0	441.6	440.6	440.5
47	Other foreign content	451.2	408.5	422.4	419.5	419.4	467.7	525.3	568.6	708.2	714.4	716.1	711.6
48	U.S. content	65.0	66.1	75.3	79.1	82.6	92.2	110.9	122.3	128.6	138.6	147.4	156.4
	Source of the content of nonbank U.S. affiliates' sales (except to other U.S. affiliates of the same parent):												
49	Output sold or added to inventory, total (line 29 minus line 34 plus the change in inventories)	521.5	534.8	600.3	638.5	678.0	751.6	899.7	1,070.5	1,186.6	1,190.5	1,235.5	1,307.6
50	U.S. content	435.8	451.7	497.8	523.3	549.9	604.6	740.3	893.6	998.0	1,004.6	1,043.5	1,100.9
51	Value added by U.S. affiliates of foreign companies	103.5	111.5	128.8	134.9	142.1	157.9	190.4	223.4	239.3	257.6	266.3	290.4
52	Other U.S. content	332.3	340.2	369.0	388.4	407.8	446.7	550.0	670.4	758.7	746.9	777.2	810.5
53	Foreign content	85.7	83.1	102.5	115.3	128.1	147.0	159.4	176.6	188.7	186.0	192.0	206.6

n.a. Not available

for nonbank and bank affiliates. For nonbank affiliates, net receipts are derived as affiliates' sales less their purchases from the United States, their costs and profits accruing to foreigners, and their sales to other foreign affiliates of the same U.S. parent company. For bank affiliates, only total net receipts are shown, because annual information on sales and deductions from sales is unavailable. Information on net U.S. payments to foreign companies resulting from sales by their U.S. affiliates is presented in a parallel fashion.

Other receipts or payments consist of other private and U.S. Government transactions. These transactions differ from those recorded under cross-border trade and net receipts from sales by affiliates in terms of the nature of the transactor's involvement: Rather than entailing an active involvement in the production or sale of goods and services by the cross-border exporter or by the direct investor and its affiliates, these receipts and payments cover transactions in which individuals or firms make an investment and receive a return, but without being actively involved in the activities generating the return.

Patterns of Transactions

This section focuses on changes in the composition of the various ownership-based categories that comprise the current account. Before examining these changes, however, it can be noted that during the period covered, each major category of transactions roughly doubled: From 1982 to 1993, U.S. exports of goods, services, and income increased by a factor of 2.1; imports of goods, services, and income, by a factor of 2.3; and net unilateral transfers, by a factor of 2.0. Over the same period, the current-dollar value of overall U.S. economic activity—whether measured by gross domestic product or gross national product—increased by a factor of 2.0, roughly the same as the growth in exports and imports.

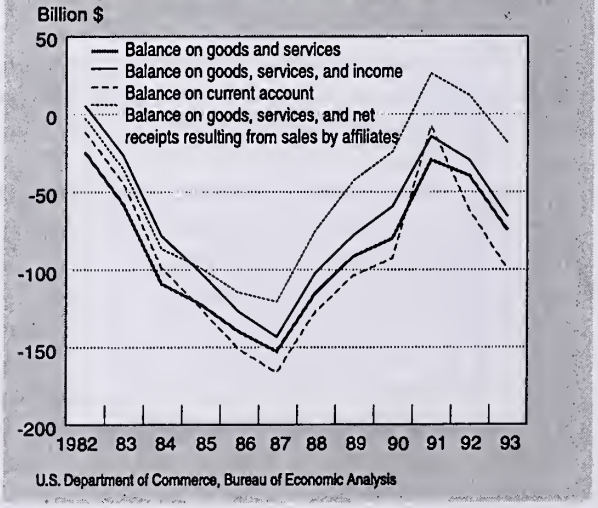
Reflecting the tendency for differences in growth of opposing flows to result in much larger relative movements in the corresponding net balances, changes in the balances on the current account and its components were, in relative terms, quite large, even though the major components from which the balances are derived grew at similar rates. Although there were several years in which they moved in a positive direction, all of the balances were more negative in 1993 than in 1982. The total deficit on current account rose from $11.4 billion to $99.9 billion (chart 1 and table 1, line 43), while the balance on goods, services, and income shifted from a surplus of $5.6 billion to a deficit of $65.8 billion (line 42). The deficit on goods, services, and net receipts resulting from sales by affiliates increased from $2.2 billion to $18.5 billion (line 41). Throughout 1982–93, this measure showed a smaller deficit (or, in 1991 and 1992, a surplus) than was recorded for the balance on cross-border trade in goods and services alone, because net U.S. receipts from sales by foreign affiliates consistently exceeded net U.S. payments to foreign companies from sales by their U.S. affiliates. The deficit on cross-border trade in goods and services increased from $24.2 billion to $74.8 billion (line 40).

Changes in composition

The period 1982–93 saw numerous developments that might have been expected, directly or indirectly, to have had a material impact on the composition of the ownership-based current-account components: Major movements in exchange rates, rising trade and investment in services, growing integration of the world economy and of global financial markets, emergence of newly industrialized economies and liberalization of trade and investment policies by a number of developing countries, the political and economic transformation of Eastern Europe, rapid increases in foreign direct investment in the United States, and cyclical fluctuations in economic activity. Given these developments and the length of the period studied, significant changes in the composition of these components would have been expected. As described in this section, some

CHART 1

Comparison of Balances, 1982–93



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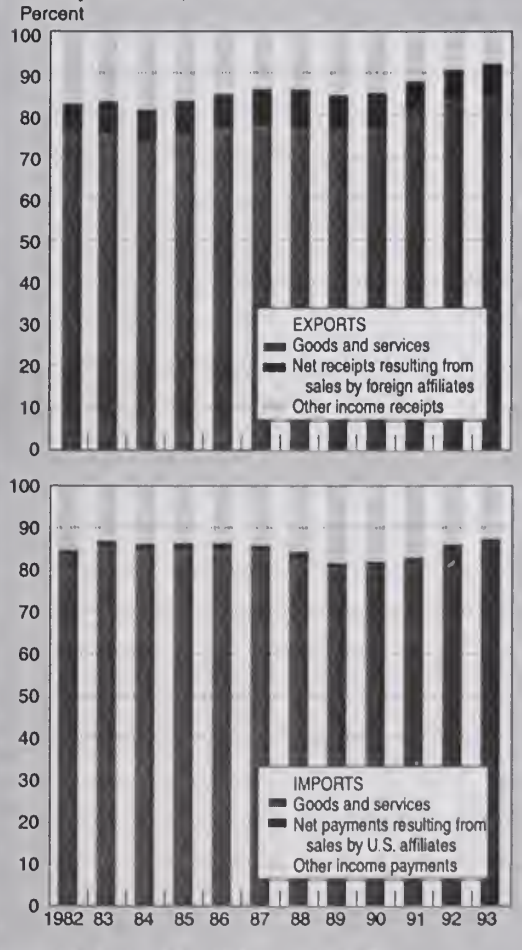
changes did occur; however, somewhat surprisingly, the overall picture is one more of stability than of change.

Throughout 1982–93, cross-border exports of goods and services accounted for a substantially larger share of total exports of goods, services, and income than either net receipts from sales by affiliates or other income receipts (chart 2). The share of exports of goods and services remained in the range of 74–78 percent through 1990 and then rose to a peak of over 84 percent in 1993. The rise in share toward the end of the period came at the expense of the share of "other income receipts," which fell not only relatively but also in absolute terms in the early 1990's, as interest rates and lending to foreigners by U.S. banks declined in response to sluggish economic conditions in several major borrowing areas. The share of receipts from sales by affiliates was relatively stable, ranging from just under 7 percent to over 9 percent.

CHART 2

Exports and Imports of Goods, Services, and Income: Shares of the Major Components, 1982–93



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For U.S. imports of goods, services, and income, similar patterns held. Trade in goods and services accounted for an even larger share of imports than of exports, ranging from 81 percent to 87 percent. The share of "other income payments" was next largest, ranging from nearly 13 percent to over 18 percent. The share of payments resulting from sales by U.S. affiliates was consistently the smallest—less than 2 percent in all years; although foreign direct investment in the United States grew rapidly in the late 1980's and early 1990's, this growth generally did not translate into commensurately higher earnings for U.S. affiliates.[3]

For both exports and imports, goods consistently accounted for a much larger share of total trade in goods and services than did services, probably because of the generally greater "tradeability" of goods (which usually are transportable and storable) than of services (which usually are not) in foreign markets. The share of goods in imports was particularly high—80–83 percent. For exports, the share of goods was somewhat lower, and it tended to decline as growth in services exports outpaced growth in goods exports.[4] The share of goods did rise noticeably in 1988, when U.S. merchandise exports grew at an unusually high 28-percent rate because of a convergence of favorable price and demand factors, but it fell steadily thereafter.

By type of transactor.—Most trade in goods and services represented trade with unaffiliated foreigners rather than intrafirm trade. For exports, the share of unaffiliated transactions ranged from 66 to 71 percent, ending the period at the same level as it began (chart 3). For imports, the share of unaffiliated transactions trended downward over much of the period, from 68 percent in 1982 to 63 percent in 1993. The decline was reflected in both goods and services and mostly occurred in the late 1980's; during this period, foreign direct investment in the United States was growing very rapidly, boosting imports by U.S. affiliates from their foreign parents.

3. For further discussion of the returns on foreign direct investment in the United States, see "Rates of Return on Direct Investment," SURVEY 72 (August 1992): 79–86.

4. Some of the decline in the share of goods is a statistical artifact resulting from improvements in coverage of services transactions instituted in 1986. The improvements raised estimates of both exports and imports of services, but the effect on exports was larger. Even after allowing for this statistical factor, however, the services share of exports still would have increased over the period, as it did in every year except 1988, when special factors boosted merchandise exports.

The aforementioned tendency for goods to account for the predominant share of total trade in goods and services holds for both unaffiliated and intrafirm trade, but the share is higher for intrafirm trade than for unaffiliated trade. For exports, goods accounted for 82–88 percent of intrafirm trade, compared with 66–72 percent of unaffiliated trade. For imports, the differences were even more marked: Goods accounted for 94–97 percent of intrafirm trade, compared with 72–77 percent of unaffiliated trade.

The tendency for goods to dominate intrafirm trade held for trade involving both inward and outward investment. In all cases, the share accounted for by services was less than 20 percent, and in many cases, particularly for imports, the services share was much lower. Although the services shares were uniformly rather low, it is noteworthy that they were larger for exports than for imports in the case of both trade between U.S. parents and foreign affiliates and trade between U.S. affiliates and foreign parents. Thus, the overall U.S. comparative advantage in services evidently is a more significant determinant of the distribution of intrafirm trade between goods and services than the type of affiliation between transactors.

To some extent, the larger share of goods in intrafirm trade than in unaffiliated trade reflects the fact that some services—most notably travel, which is the largest services item in the U.S. balance of payments accounts—by their very nature are not applicable to trade within multinational firms. It also reflects exporters' use of locally established wholesale trade affiliates as conduits for distributing their goods abroad. This practice is particularly widespread among foreign exporters to the United States and helps to explain the ex-

CHART 3

Cross-Border Exports and Imports of Goods and Services: Shares by Transactor, 1982–93

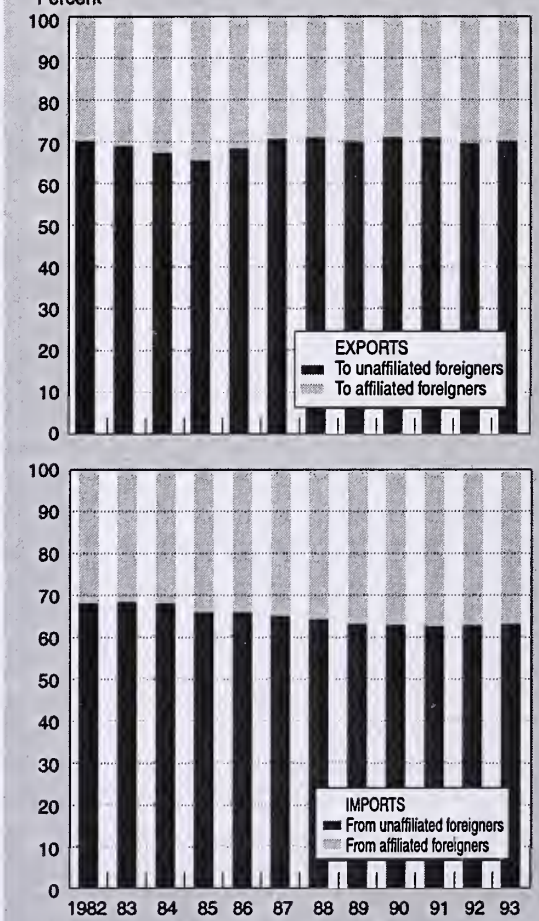

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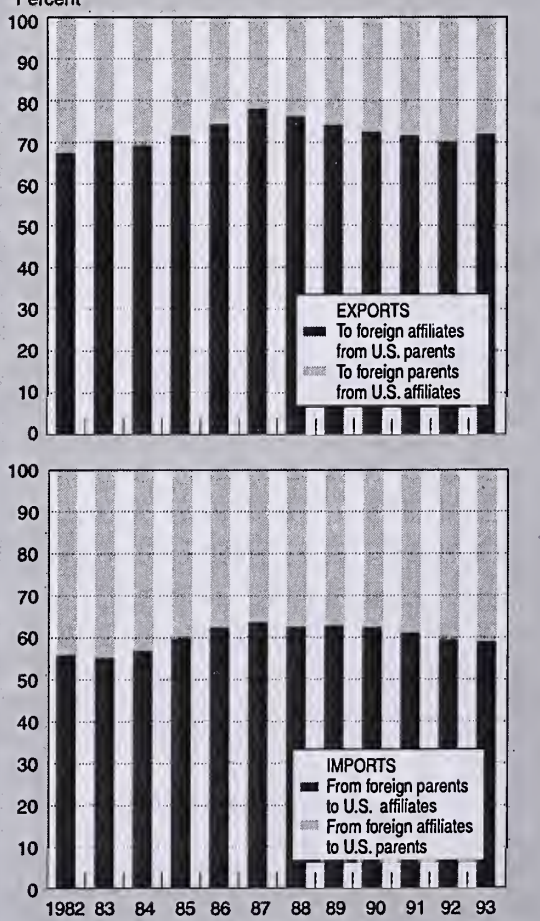
CHART 4

Intrafirm Exports and Imports of Goods and Services: Shares by Type of Affiliation, 1982–93



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tremely large share of goods in U.S. imports from affiliated foreigners.[5]

Intrafirm exports accounted for 29–34 percent of total U.S. exports of goods and services and largely comprised transactions associated with outward investment. U.S. parents' exports to their foreign affiliates accounted for roughly two-thirds to three-quarters of total intrafirm exports (chart 4). In most years, U.S. parents' exports to their foreign affiliates accounted for over 20 percent of total U.S. exports of goods and services, compared with a share of 10 percent or less for U.S. affiliates' exports to their foreign parents.

Intrafirm imports accounted for 32–37 percent of total U.S. imports of goods and services and largely comprised transactions associated with inward investment. Imports by U.S. affiliates from their foreign parents accounted for 55–64 percent of total intrafirm imports. These imports accounted for roughly 20 percent of total U.S. imports of goods and services, somewhat above the 13–15 percent share accounted for by U.S. parents' imports from their foreign affiliates.

From these figures, it can be seen that for both exports and imports, the larger share of intrafirm trade was accounted for by sales by parents—whether U.S. or foreign—to their affiliates. Although affiliates are often established to provide goods and services *to* their parent companies, these figures suggest that it is more common for them to receive goods and services *from* their parents. Put another way, using affiliates as conduits for the parents' output (sometimes with further processing) appears to be a more common business practice among both U.S.-based and foreign-based multinational companies than does using affiliates as sources of supply.

Supplemental Details on Affiliate Operations

In addition to providing an alternative disaggregation of U.S. current-account transactions, table 1 provides a variety of details that assist in describing affiliate operations and analyzing the role of direct investment as a vehicle for supplying international markets. Two related types of information are given: Estimates used in deriving net receipts and payments resulting from sales by nonbank affiliates, and estimates of the content of nonbank affiliates' output.

5. The role of U.S. affiliates in facilitating the distribution in the United States of goods produced by their foreign parents is discussed in "Merchandise Trade of U.S. Affiliates of Foreign Companies," SURVEY 73 (October 1993): 52–65.

Net receipts and payments resulting from affiliates' sales

As explained earlier, net U.S. receipts from sales by foreign nonbank affiliates are derived as sales less three items: Purchases from the United States, costs and profits accruing to foreigners, and sales by foreign affiliates to other foreign affiliates of the same U.S. parent (lines 11–16 of table 1). Purchases from the United States and costs and profits accruing to foreigners represent outlays that must be deducted from sales in order to arrive at the earnings that accrue to the U.S. parent company. The deduction for sales to other foreign affiliates of the same U.S. parent is made to avoid duplicating goods and services that are embodied in the sales of more than one affiliate.[6] Net U.S. payments to foreign companies from sales by their U.S. affiliates are derived in a parallel fashion.

Turning to the specific results under this methodology, the relationships among the items used to derive net receipts or payments changed relatively little over time and were similar for U.S. and foreign affiliates. Compared with total sales by nonbank affiliates, net receipts tended to be quite small—1 percent or less for U.S. affiliates and 2–4 percent for foreign affiliates. For both types of affiliates, the largest portion of the sales dollar went to "locally" supplied factors of production (in the case of foreign affiliates, to all factors supplied by countries other than the United States). For foreign affiliates of U.S. companies, 70–78 percent of sales went to costs and profits accruing to foreigners, and the shares tended to be higher during the earlier years; most of these costs and profits represented items other than employee compensation—probably payments for locally procured inputs for the most part. For U.S. affiliates of foreign companies, 79–85 percent of sales went to costs and profits accruing to U.S. residents; as with outward investment, most of these costs and profits were for items other than employee compensation and probably were largely payments for locally procured goods and services.

Content of affiliates' sales

The addenda to table 1 examine nonbank affiliates' sales from a related, but somewhat different,

6. Rather than being treated as an item to be eliminated through consolidation, sales between affiliates of the same parent company could have been recorded as a "purchases" item, to be deducted as a cost accruing to foreigners (because, according to the rules of residency used in the U.S. international accounts, foreign affiliates are regarded as "foreigners," even though they are U.S. owned). However, so doing would have had no effect on total exports, total imports, or any of the balances presented in table 1.

perspective from that taken above.[7] These items focus on the output of affiliates and, in particular, on the output's geographic origin and whether it represents production by affiliates themselves or by firms that supply them with intermediate inputs. Specifically, sales (plus the change in inventories) of U.S. and foreign nonbank affiliates, excluding sales to other affiliates of the same parent, are separated into two components: U.S. content and foreign content. The U.S. content of U.S. affiliates' sales to nonaffiliates is then further broken down into the affiliates' own value added and other U.S. content, and the foreign content of foreign affiliates' sales is broken down in a parallel fashion.

During 1982–93, foreign affiliates' output and U.S. affiliates' output had similar, quite stable structures. As would be expected, the location of the affiliate largely determines the origin of the output: The bulk—88–92 percent—of the output of foreign affiliates originated abroad, while the bulk—80–84 percent—of the output of U.S. affiliates originated in the United States. The tendency for the U.S.-content share of the output of U.S. affiliates to be lower than the foreign-content share of the output of foreign affiliates appears largely to reflect U.S. affiliates' higher import propensities; however, it also reflects U.S. affiliates' lower profitability (profits are included in local content as a component of the affiliates' own value added) and the fact that the "foreign" content of the output of foreign affiliates includes content attributable to third countries.

Affiliates' own value added accounted for a minority of both the foreign content of foreign affiliate output and the U.S. content of U.S. affiliate output. For foreign affiliates, own value added accounted for roughly 40 percent of foreign content. For U.S. affiliates, own value added accounted for a somewhat lower share of U.S. content—roughly 25 percent. In addition to low profitability, the lower value-added share for U.S. affiliates may reflect the influence of age. Overall, U.S. affiliates tend to be newer than foreign affiliates, and it is possible that as they mature they will tend to rely more on their own production and less on local suppliers (as well as on foreign suppliers). There is little evidence for such a pattern in the available data, which show only a small variation in the value-added share of local content over an 11-year period; however, because the period includes several years of rapid growth in foreign direct investment in the United States, entries into the direct investment universe may have reduced or eliminated growth in the average age of all affiliates.

7. This information is not available on an annual basis for bank affiliates.

Data Availability

Estimates of value added (gross product) of nonbank majority-owned foreign affiliates of U.S. parent companies for 1983–88 are now available; the estimates are disaggregated by country and industry of affiliate and by component. Previously, such estimates were available only for 1977, 1982, and 1989–93. (The aggregate estimates for all nonbank affiliates presented in table 1 were derived from the estimates for majority-owned affiliates, as described in the technical note.) For information on how to obtain the new estimates, call (202) 606–9867, or write to Research Branch, International Investment Division (BE-50), Bureau of Economic Analysis, Washington, DC 20230.

Technical Note: Sources and Methods

Most of the data shown in table 1 are taken directly from either the U.S. balance of payments accounts or from BEA's annual surveys of financial and operating data of U.S. parents, their foreign affiliates, and foreign-owned U.S. affiliates. Some items had to be estimated because data were not available for them in the form required. A few items were derived as residuals. The sources for the various line items of table 1 follow; line references appear in parentheses. Except where specifically noted, data on import items have been taken from the same sources as the data on exports or from corresponding sources.

Total cross-border exports of goods and services (3, 3a, and 3b) were taken from the balance of payments accounts. Cross-border exports of goods and services to affiliated foreigners (5, 5a, and 5b) were derived as follows: Exports of goods to foreign affiliates of U.S. companies (6a) were taken from BEA's annual surveys of U.S. direct investment abroad; exports of services to foreign affiliates of U.S. companies (6b), from BEA's quarterly surveys of transactions between U.S. parents and their foreign affiliates; exports of goods by U.S. affiliates to their foreign parent groups (7a), from BEA's annual surveys of foreign direct investment in the United States; and exports of services by U.S. affiliates to their foreign parent groups (7b), from BEA's quarterly surveys of transactions between U.S. affiliates and their foreign parents. Cross-border exports of goods and services to unaffiliated foreigners (4, 4a, and 4b)

were derived as a residual, by subtracting exports to affiliated foreigners from total exports.

U.S. companies' net receipts resulting from sales by their foreign affiliates (8) are equivalent to direct investment income as shown in the balance of payments accounts. Estimates of this income are derived from BEA's quarterly surveys of transactions between U.S. parents and their foreign affiliates. Before being entered into the balance of payments accounts, the estimates are adjusted to a current-cost basis. Distribution of the current-cost adjustment among industries is not possible, and in table 1, the adjustment has been allocated entirely to nonbank affiliates; the affected lines are lines 9 and 14.

Sales by (nonbank) foreign affiliates (10) and employee compensation (13) were taken from BEA's annual surveys of U.S. direct investment abroad. U.S. companies' net receipts resulting from sales by their foreign bank affiliates (16) were taken from BEA's quarterly surveys of transactions between U.S. parents and their foreign affiliates. Foreign affiliates' purchases of goods and services from the United States (11) weretaken from BEA's annual survey of U.S. direct investment abroad (for goods) and from BEA's quarterly survey of U.S. direct investment abroad (for services). U.S. companies' net receipts resulting from sales by their foreign nonbank affiliates (9), costs and profits accruing to foreigners (12), and other costs and profits accruing to foreigners (14) were derived from other lines as follows: Line 9 is the residual derived by subtracting line 16 from line 8; line 12 is derived as line 10 minus lines 8, 11, and 15 plus line 16; and line 14 is the residual derived by subtracting line 13 from line 12. Finally, survey data on sales by foreign affiliates to other foreign affiliates of the same parent (15) were obtained from the annual surveys of U.S. direct investment abroad but were only available for majority-owned affiliates; an estimate for all nonbank affiliates was extrapolated from these data, based on the relationship between total sales by all nonbank affiliates and total sales by nonbank majority-owned affiliates.

On the import side of the accounts, sales by U.S. affiliates to other U.S. affiliates of the same foreign parent (34) could not be estimated. (However, due to the consolidated basis for reporting by U.S. affiliates, it is probably safe to assume that these sales were relatively small.) The other lines that are related to net payments to foreign companies for sales by their U.S. affiliates (27–35) were derived in a manner analogous to those for net receipts.

Other income receipts (17–19), other income payments (36–38), and net unilateral transfers (39) were taken directly from the balance of payments accounts.

The balance on goods and services (40), balance on goods, services, and income (42), and balance on current account (43) were also taken from the balance of payments accounts. They also can be derived from other lines as line 3 minus line 22, line 1 minus line 20, and line 1 minus line 20 plus line 39, respectively. The balance on goods, services, and net receipts resulting from sales by affiliates (41), the new balance shown in this article, was derived by subtracting line 21 from line 2.

The addenda items were derived mainly from data shown in the main body of table 1. Output sold or added to inventory (excluding sales to other foreign affiliates of the same parent) (44) by nonbank foreign affiliates is equal to line 10 minus line 15 plus the annual change in inventory (estimated for all nonbank affiliates by extrapolating data for majority-owned affiliates from BEA's annual surveys of U.S. direct investment abroad, based on the relationship between total assets of all nonbank affiliates and total assets of nonbank majority-owned affiliates). U.S. content (48) is equal to line 11. Foreign content (45) is the residual obtained by subtracting line 48 from line 44. Value added by foreign affiliates of U.S. companies (46) was estimated from BEA's annual surveys of U.S. direct investment abroad (by extrapolation of estimates for majority-owned affiliates). Other foreign content (47) is a residual derived by subtracting line 46 from line 45.

The addenda items for U.S. affiliates were derived analogously from the same or corresponding sources. However, because BEA publishes value added by all nonbank U.S. affiliates, no special estimates for minority-owned affiliates had to be prepared.

Multinational Companies

Production, Sourcing, Distribution, and Trading Patterns

Gross Product of U.S. Affiliates of Foreign Companies, 1977–87

By Jeffrey H. Lowe

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THIS ARTICLE presents estimates of gross product (value added) of nonbank U.S. affiliates of foreign companies—the affiliates' contribution to U.S. gross domestic product (GDP)—for 1977–87.[1] Gross product is an economic accounting measure of production. For an individual business, it can be defined as sales plus inventory change, less purchases from other businesses. Thus, it measures value added by the business. It can also be defined as the sum of income from current production plus certain nonfactor charges. For affiliates, the major types of income are employee compensation, profit-type return, and net interest; nonfactor charges are indirect business taxes and capital consumption allowances. The estimates presented in this article were prepared by summing these items.

Estimates of affiliate gross product are useful in measuring the size and economic impact of affiliates on the U.S. economy as a whole and on individual U.S. industries. Although sales by affiliates can also be used to measure this impact, gross product is a preferable measure for some purposes. Gross product indicates the extent to which affiliates' sales result from their own production rather than from production that originates elsewhere, whereas sales data do not distinguish between these two sources of production. In addition, gross product estimates measure the value added to the economy by affiliates in a specific time period. In contrast, sales in a given period may represent production of earlier periods, that is, out of inventory.

The gross product estimates, while useful measures of U.S. GDP attributable to firms in which there is foreign direct investment, are subject to several limitations or qualifications. Movements in affiliate gross product reflect acquisitions of existing U.S. businesses, as well as the establishment of new affiliates and changes in production by existing affiliates. Thus, an increase in affiliate gross product may not represent an increase in U.S. GDP; rather, it may simply represent a shift in the ownership or control of productive resources that would have contributed to GDP in any event.[2] Furthermore, because the estimates are in current dollars, they reflect changes in prices as well as changes in real output. Finally, it should be emphasized that not all of the factors of production that generate affiliate gross product are foreign owned. The largest share of affiliate gross product is accounted for by employee compensation, almost all of which accrues to U.S. workers, and some of the profit- type return of affiliates that are not wholly owned by foreign direct investors accrues to U.S. owners.

The remainder of this article is divided into three sections. The first reviews the growth and distribution from 1977 to 1987 of U.S. affiliate gross product by industry of affiliate, by country of ultimate beneficial owner (UBO), and by component.[3] The second compares the level, growth, and composition of affiliate gross product with those of all-U.S.-business gross product, as measured in the national income and product accounts (NIPA's). The third illustrates how gross product data, together with other data on U.S. affiliates' operations, can be used to analyze the structure of affiliates' production. A technical note at the end of the article discusses data sources, estimation procedures, and conceptual differences between the components of U.S. affiliate and NIPA gross product.

1. A U.S. affiliate is a U.S. business enterprise in which a single foreign person owns or controls, directly or indirectly, 10 percent or more of the voting securities of an incorporated business enterprise or the equivalent interest in an unincorporated business enterprise.

2. Because data on U.S. affiliates are reported to BEA on a consolidated basis, it is not possible to isolate increases in gross product due to acquisitions from increases due to other factors. When a U.S. business enterprise is acquired by an existing U.S. affiliate, data for the acquired entity are consolidated with those of the existing affiliate and cannot be separately identified. It should be noted that although the primary effect of the acquisition of an existing business enterprise is merely a shift in ownership, secondary effects on U.S. GDP may occur. For example, some or all of any funds that were brought into the United States from abroad and transferred to the previous owners may be used for investment in the United States, or the new owners may utilize resources more or less efficiently than the previous ones. Data needed to gauge such secondary effects are unavailable.

3. The UBO is that person, proceeding up a U.S. affiliate's ownership chain beginning with and including the foreign parent, that is not owned more than 50 percent by another person.

Growth and Distribution of U.S. Affiliate Gross Product, 1977–87

Overview

Gross product of U.S. affiliates grew from $35.2 billion in 1977 to $151.9 billion in 1987 (table 1). The average annual growth rate during this period was 16 percent. Affiliate gross product grew much more rapidly during 1977–81, although from a smaller base, than during 1981–87—an average annual rate of 29 percent, compared with 7 percent. The faster growth in the earlier period may have reflected several factors. First, during that period, U.S. companies were being acquired by foreigners at a rapid pace. After slowing in 1982–83, the pace and the size of acquisitions picked up again in 1984. However, after 1981, disinvestment increased, as some of the acquisitions made earlier proved unprofitable and as foreign parents sold off unwanted divisions of recently acquired affiliates.[4]

Second, growth in affiliate gross product slowed considerably in 1982 because of the worldwide economic recession. Slack demand led to sharp declines in production by existing affiliates, and slow recovery overseas limited foreigners' ability to make new investments.

Third, inflation rates in the United States were higher during 1977–81 than after 1981. (As noted earlier, the estimates are in current dollars and thus reflect price changes as well as changes in real output.)

Finally, growth in affiliate gross product may have been affected by fluctuations in the value of the dollar vis-a-vis foreign currencies. During 1977–80, depreciation of the dollar encouraged new investment in the United States by making it cheaper for foreigners to produce and invest here. When the dollar appreciated during 1981–85, these activities became relatively more expensive, and new U.S. investment may have been dampened.

By industry

The pattern of rapid growth of affiliate gross product in 1977–81, and of much slower growth in 1981–87, was widespread by industry. For example, in manufacturing—which accounted for nearly 50 percent of the affiliate total throughout 1977–87—gross product grew at an average annual rate of 30 percent in 1977–81, compared with 8 percent in 1981–87, about the same rates as those for all industries combined. In petroleum, a 29-percent growth rate was followed by a negative 2-percent rate. All other industries com-

4. The pattern of rapid growth during 1977–81 followed by slower growth from 1981–87 is also reflected in other measures of foreign direct investment in the United States. For example, sales by affiliates grew at an average annual rate of 27 percent in 1977–81 and 6 percent in 1981–87. The respective growth rates for assets were 30 percent and 15 percent; for employment, 19 percent and 5 percent; and, for the foreign direct investment position in the United States, 33 percent and 16 percent.

Table 1.—Gross Product of U.S. Affiliates, by Industry of Affiliate, 1977–87

	Millions of dollars											Percent				
												Average annual growth rate			Distribution	
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1977–81	1981–87	1977–87	1977	1987
All industries	**35,222**	**42,920**	**55,424**	**70,906**	**98,828**	**103,489**	**111,490**	**128,761**	**134,852**	**142,120**	**151,905**	**29**	**7**	**16**	**100**	**100**
Petroleum	7,654	9,263	11,869	16,988	21,336	20,453	19,901	20,782	21,162	17,165	18,786	29	–2	9	22	12
Manufacturing	16,672	20,403	26,429	30,981	47,117	47,189	52,461	61,423	62,536	65,794	73,796	30	8	16	47	49
Food and kindred products	2,603	2,868	3,398	3,884	4,847	4,833	5,375	5,939	6,299	6,381	6,222	17	4	9	7	4
Chemicals and allied products	5,373	6,273	7,417	8,240	18,623	18,323	19,857	22,296	21,893	22,564	25,690	36	6	17	15	17
Primary and fabricated metals	2,010	2,125	3,080	3,662	3,994	3,557	5,540	6,840	7,023	7,407	7,183	19	10	14	6	5
Machinery	3,191	4,160	6,081	7,432	9,105	9,532	9,776	11,876	11,520	11,942	12,373	30	5	15	9	8
Other manufacturing	3,494	4,976	6,452	7,764	10,548	10,944	11,913	14,472	15,801	17,500	22,329	32	13	20	10	15
Wholesale trade	5,044	5,319	6,624	8,366	11,191	13,650	14,154	17,153	19,656	19,639	18,879	22	9	14	14	12
Retail trade	2,310	2,786	3,899	5,265	6,192	8,004	8,646	9,501	10,304	12,439	10,505	28	9	16	7	7
Finance, except banking	238	331	462	881	1,078	1,650	2,744	4,103	4,394	6,416	6,504	46	35	39	1	4
Insurance	925	1,263	1,349	1,678	2,007	1,609	1,692	1,241	1,768	4,114	5,250	21	17	19	3	3
Real estate	429	698	1,165	1,722	2,606	2,580	3,512	4,564	4,359	4,423	4,564	57	10	27	1	3
Services	586	911	1,223	1,554	2,034	2,209	2,975	4,066	4,741	5,166	6,498	36	21	27	2	4
Other industries	1,363	1,946	2,404	3,470	5,267	6,145	5,405	5,928	5,932	6,964	7,123	40	5	18	4	5
Addenda:																
Motor vehicles and equipment manufacturing	38	(D)	1,217	1,511	1,747	1,736	1,765	2,741	2,669	2,221	1,484	160	–3	44	(*)	1
Motor vehicles and equipment wholesale trade	1,091	(D)	1,721	2,396	3,333	3,931	4,662	6,513	8,209	7,386	6,712	32	12	20	3	4
Total motor vehicles and equipment	1,129	1,629	2,938	3,907	5,080	5,667	6,427	9,254	10,878	9,607	8,196	46	8	22	3	5

(D) Suppressed to avoid disclosure of data of individual companies.
* Less than 0.5 percent.
NOTE.—Details may not add to totals because of rounding.

bined grew at a 30-percent rate in 1977–81 and a 12-percent rate in 1981–87.

In manufacturing, growth in gross product throughout 1977–87 was at an average annual rate of 16 percent. Within manufacturing, the most rapid growth was in "other manufacturing" and chemicals.[5]

In "other manufacturing," growth was particularly strong in motor vehicles and equipment. However, most U.S. affiliates of large foreign automobile manufacturers are classified in motor vehicle and equipment wholesale trade and not in motor vehicle and equipment manufacturing, because a majority of their sales result from the wholesale distribution of imported cars rather than from their sales of cars manufactured in the United States. For analytical purposes, it is useful to combine these two segments of the auto industry and examine them together. In the tables, the data for the combined industries are shown in the addenda, under the heading of "total motor vehicles and equipment."

Most of the growth in total motor vehicles and equipment occurred between 1977 and 1985. Surging demand for fuel-efficient imported vehicles induced foreign auto companies—mainly from Japan and Germany—to expand their U.S. wholesale operations. Fears of U.S. trade protectionism may have also encouraged them to produce in the United States rather than to supply U.S. markets entirely from abroad. Some increases in production from affiliates of Japanese UBO's may have resulted from Japan's institution of a voluntary export restraint program for motor vehicles in 1981. In addition, a French UBO's acquisition in 1979 of a U.S. automobile manufacturer boosted affiliate production.

In 1986–87, gross product in total motor vehicles and equipment declined. The French UBO's automobile manufacturer proved unprofitable and was sold to a U.S. company in 1987. That same year, a German UBO closed its U.S. production facilities following several years of poor sales. In addition, gross product declined in 1986–87, when wholesalers were forced to raise prices for imported vehicles, because of dollar depreciation. These higher prices dampened demand. Although several joint ventures between Japanese and U.S. companies to produce cars in the United States were launched during 1986–87, they did not make substantial contributions to gross product in those years, because they had not become fully operational. Since 1987, most of these ventures have become operational, and their gross product has probably increased.

In chemicals, gross product rose at an average annual rate of 17 percent in 1977–87. Growth was very rapid in 1977–81; however, much of it occurred in 1981, when gross product more than doubled because a Canadian UBO acquired a minority interest in a major producer of industrial chemicals and synthetics. The rate of growth slowed in 1981–87, largely because increased affiliate production resulting from several acquisitions in 1985–86 was mostly offset by the disinvestment of a large agricultural chemicals affiliate that repurchased the minority equity interest held by its German UBO.

In petroleum, gross product grew at an average annual rate of 9 percent in 1977–87. During 1977–81, gross product of petroleum affiliates increased at the same rate as that of all affiliates. The increase mainly reflected rising crude oil prices and stepped-up production in Alaska. However, crude oil prices began to fall in 1982; in 1986 alone, they fell by one-half. As a result of the price collapse, gross product in petroleum declined in 1981–87, and these affiliates' share of total affiliate gross product fell from 22 percent in 1981 to 12 percent in 1987.[6]

In finance (except banking), gross product of affiliates grew at an average annual rate of 39 percent. These affiliates accounted for a small, but growing, share of affiliate gross product. Their faster-than-average growth mirrored the faster growth of this industry in the U.S. economy as a whole. Increased consolidation and globalization and a surge in the varieties of financial instruments available made it essential for successful competitors in this industry to have access to large amounts of capital. Foreign investors were willing to supply this capital in return for minority ownership interests.[7]

By country of UBO

Gross product of affiliates with European UBO's grew at a 14-percent average annual rate in 1977–87 (table 2). These affiliates accounted for 69 percent of total affiliate gross product in 1977, but

5. Industries in "other manufacturing" are textile products and apparel; lumber, wood, furniture, and fixtures; paper and allied products; printing and publishing; rubber and plastics products; stone, clay, and glass products; transportation equipment; instruments and related products; and manufacturing industries not elsewhere classified.

6. The acquisitions of the remaining shares of a petroleum affiliate by a Netherlands UBO in 1985 and those of a different petroleum affiliate by a British UBO in 1987 did not by themselves increase gross product. Because the data are not adjusted for percentage of foreign ownership, the gross product of these affiliates was already included in the data before the acquisitions of the remaining shares.

7. The growth of affiliate gross product in this industry would have been even larger, but a South African UBO and a Middle Eastern UBO each sold minority interests in large affiliates to U.S. buyers in 1987.

their share fell to 60 percent by 1987, because of their slower-than-average growth over the period. Gross product of affiliates with UBO's in Africa, Asia, and Pacific had faster-than-average growth, particularly in 1981–87; thus, their share of the total increased from 9 percent to 16 percent. Although the gross product of affiliates with Canadian UBO's also grew faster than average, much of the growth occurred in 1981 and resulted from a single transaction—the previously mentioned purchase of the minority interest in a major producer of industrial chemicals.

Among affiliates with European UBO's, growth rates varied by country. Growth was relatively rapid for affiliates with UBO's in Germany, Switzerland, the United Kingdom, and "other" Europe; it was relatively slow for affiliates with UBO's in France and the Netherlands. The differences in growth rates mostly reflected differences in the distribution of gross product by industry. For example, affiliates with French UBO's were concentrated in manufacturing industries—such as paper, transportation equipment, and stone, clay, and glass—that were among those most affected by recession-related layoffs and financial losses in the early 1980's; their gross product did not exceed the 1981 level until 1986. Growth among affiliates with Netherlands UBO's was particularly slow; it partly reflected the concentration of their investment in petroleum. (As noted earlier, gross product in petroleum declined during 1981–87.) Affiliates with German and Swiss UBO's, in contrast, were concentrated in industries—such as industrial chemicals and drug manufacturing—that grew relatively quickly. Increases in gross product of affiliates with UBO's in the United Kingdom probably reflected the large number and size of acquisitions by these UBO's. In "other" Europe, much of the growth reflected the reclassification of a finance affiliate's UBO to Belgium from Kuwait in 1986.

Gross product of affiliates with UBO's in Africa, Asia, and Pacific increased every year and exhibited the fastest growth among the major areas with a substantial amount of gross product.[8] Compared with other areas, growth was strong during 1981–87. Affiliates with Japanese UBO's accounted for most of the gross product in this area. In the early 1980's, these UBO's rapidly expanded their wholesale trade operations in the United States, particularly in motor vehicles and equipment and in electrical goods. More recently, growth has mainly resulted from the acquisition of minority interests in several large finance companies and the startup or expansion of manufacturing facilities. The rapid growth of affiliates with UBO's in countries other than Japan partly reflected a number of large acquisitions by Australian UBO's and the establishment of wholesale trade operations by investors from the newly industrialized countries in Asia, particularly South Korea.

By component

The distribution of U.S. affiliate gross product by component is presented for major industries in table 3. The components whose shares of to-

8. Affiliates with UBO's in the Middle East and the United States grew somewhat faster in 1977–87, but they accounted for only 1–3 percent of total affiliate gross product in any single year.

Table 2.—Gross Product of U.S. Affiliates, by Country of Ultimate Beneficial Owner, 1977–87

	Millions of dollars											Percent				
												Average annual growth rate			Distribution	
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1977–81	1981–87	1977–87	1977	1987
All countries	35,222	42,920	55,424	70,906	98,828	103,489	111,490	128,761	134,852	142,120	151,905	29	7	16	100	100
Canada	5,991	7,176	8,727	10,933	20,641	20,469	23,238	26,949	25,927	27,714	28,275	36	5	17	17	19
Europe	24,231	29,953	39,218	50,401	63,817	66,930	69,047	77,976	81,550	85,795	91,115	27	6	14	69	60
France	3,153	3,825	4,332	6,158	7,462	6,865	6,081	7,275	7,059	8,299	8,246	24	2	10	9	5
Germany, Federal Republic of	2,938	4,445	7,922	8,765	10,901	11,273	12,092	14,102	15,156	13,421	15,144	39	6	18	8	10
Netherlands	6,390	6,998	8,228	11,330	14,295	15,267	14,756	15,981	15,084	15,170	15,675	22	2	9	18	10
Switzerland	2,005	2,488	3,284	3,791	4,440	5,177	5,906	6,611	7,138	8,055	8,510	22	11	16	6	6
United Kingdom	7,687	9,858	12,702	17,278	22,695	23,910	24,630	27,240	30,056	29,193	31,956	31	6	15	22	21
Other	2,058	2,339	2,750	3,079	4,023	4,438	5,582	6,767	7,058	11,657	11,584	18	19	19	6	8
Latin America	1,349	1,427	1,837	2,296	2,912	2,732	3,869	4,379	3,965	3,880	4,698	21	8	13	4	3
Middle East	128	207	381	589	1,464	1,744	2,563	2,570	3,495	2,477	1,569	84	1	28	(*)	1
Africa, Asia, and Pacific	3,274	3,837	4,867	6,229	9,098	10,596	11,873	16,310	19,255	21,211	24,123	29	18	22	9	16
Japan	2,488	2,860	3,797	4,961	6,533	7,227	8,329	11,720	13,562	13,717	16,828	27	17	21	7	11
Other	786	977	1,070	1,268	2,565	3,369	3,544	4,590	5,692	7,494	7,295	34	19	25	2	5
United States	248	321	395	458	896	1,018	899	578	661	1,044	2,124	38	15	24	1	1

* Less than 0.5 percent.

NOTE.—Details may not add to totals because of rounding.

tal affiliate gross product grew from 1977 to 1987 were employee compensation and capital consumption allowances. The shares of the other three components—profit-type return, net interest, and indirect business taxes—declined. As discussed below, these changes in shares may have reflected changes in the industry composition of total affiliate gross product, variations in general economic conditions, and other factors. Each factor is discussed in relation to the component it most directly affects. A given factor, however, also affects the shares of other components, because a higher (lower) share for one component necessarily means a lower (higher) share for other components.

Employee compensation.—The share of total gross product accounted for by employee compensation (EC) increased from 53 percent in 1977 to 62 percent in 1987. This increase in share partly reflected the relatively faster growth in gross product of affiliates in labor-intensive industries. For example, in 1987, EC accounted for 105 percent and 80 percent of total gross product in finance (except banking) and services, respectively.[9] These industries grew much faster than the average for all industries combined in 1977–87. In contrast, the much more capital-intensive petroleum industry—which had

9. The employee compensation share in finance (except banking) could exceed 100 percent because the share of another component—net interest (paid)—was negative. (That is, interest received was larger than interest paid.)

Table 3.—Gross Product of U.S. Affiliates, Industry of Affiliate by Component, 1977 and 1987

	1977						1987					
	Total	Employee compensation	Profit-type return	Net interest	Indirect business taxes, etc.	Capital consumption allowances	Total	Employee compensation	Profit-type return	Net interest	Indirect business taxes, etc.	Capital consumption allowances
	Millions of dollars											
All industries	**35,222**	**18,781**	**6,181**	**2,177**	**5,025**	**3,058**	**151,905**	**93,652**	**13,609**	**8,325**	**18,568**	**17,751**
Petroleum	7,654	1,905	2,380	682	1,709	977	18,786	4,903	3,859	1,153	5,161	3,710
Manufacturing	16,672	10,713	2,132	777	1,680	1,370	73,796	49,946	6,699	4,076	4,838	8,236
Food and kindred products	2,603	957	190	(D)	1,284	(D)	6,222	3,788	239	530	1,183	482
Chemicals and allied products	5,373	3,477	822	(D)	165	(D)	25,690	14,940	4,178	1,442	1,673	3,458
Primary and fabricated metals	2,010	1,507	165	121	45	172	7,183	5,689	64	353	250	827
Machinery	3,191	2,413	373	126	84	195	12,373	10,431	–248	398	437	1,354
Other manufacturing	3,494	2,359	582	158	102	293	22,329	15,098	2,467	1,353	1,295	2,115
Wholesale trade	5,044	2,528	917	523	832	243	18,879	10,536	1,164	565	5,002	1,612
Retail trade	2,310	1,402	282	17	491	117	10,505	7,363	84	759	1,402	896
Finance, except banking	238	217	57	–48	6	6	6,504	6,833	1,069	–1,847	59	389
Insurance	925	488	476	–173	118	17	5,250	2,758	1,628	26	660	178
Real estate	429	84	–113	280	79	99	4,564	802	–492	2,458	716	1,080
Services	586	400	54	25	28	79	6,498	5,167	–251	631	341	611
Other industries	1,363	1,043	–5	94	82	148	7,123	5,344	–151	504	388	1,038
Addenda:												
Motor vehicles and equipment manufacturing	38	34	(D)	(D)	3	5	1,484	1,195	–3	49	97	146
Motor vehicles and equipment wholesale trade	1,091	390	366	110	184	42	6,712	2,822	1,117	–219	2,296	697
Total motor vehicles and equipment	1,129	424	(D)	(D)	187	47	8,196	4,017	1,114	–170	2,393	843
	Percent distribution											
All industries	**100**	**53**	**18**	**6**	**14**	**9**	**100**	**62**	**9**	**5**	**12**	**12**
Petroleum	100	25	31	9	22	13	100	26	21	6	27	20
Manufacturing	100	64	13	5	10	8	100	68	9	6	7	11
Food and kindred products	100	37	7	(D)	49	(D)	100	61	4	9	19	8
Chemicals and allied products	100	65	15	(D)	3	(D)	100	58	16	6	7	13
Primary and fabricated metals	100	75	8	6	2	9	100	79	1	5	3	12
Machinery	100	76	12	4	3	6	100	84	–2	3	4	11
Other manufacturing	100	68	17	5	3	8	100	68	11	6	6	9
Wholesale trade	100	50	18	10	16	5	100	56	6	3	26	9
Retail trade	100	61	12	1	21	5	100	70	1	7	13	9
Finance, except banking	100	91	24	–20	3	3	100	105	16	–28	1	6
Insurance	100	53	51	–19	13	2	100	53	31	(*)	13	3
Real estate	100	20	–26	65	18	23	100	18	–11	54	16	24
Services	100	68	9	4	5	13	100	80	–4	10	5	9
Other industries	100	77	(*)	7	6	11	100	75	–2	7	5	15
Addenda:												
Motor vehicles and equipment manufacturing	100	89	(D)	(D)	8	13	100	81	(*)	3	7	10
Motor vehicles and equipment wholesale trade	100	36	34	10	17	4	100	42	17	–3	34	10
Total motor vehicles and equipment	100	38	(D)	(D)	17	4	100	49	14	–2	29	10

(D) Suppressed to avoid disclosure of data of individual companies.
(*) Less than 0.5 percent (±).

NOTE.—Details may not add to totals because of rounding.

an EC share of only 26 percent in 1987—grew more slowly than average. The increased EC share may also have reflected the increased concentration of affiliates in certain high-wage industries, such as manufacturing.

Capital consumption allowances.—The share of total gross product accounted for by capital consumption allowances (CCA)—a measure of depreciation—increased from 9 percent in 1977 to 12 percent in 1987. Most of the increase occurred after 1981 and may have reflected the availability of accelerated depreciation methods for calculating income taxes under the Economic Recovery Tax Act of 1981. Although CCA for affiliates are computed on the basis of book depreciation, rather than tax depreciation, the 1981 Act may have encouraged new investment in depreciable assets, thus yielding higher CCA for affiliates. The increased CCA share may have also reflected stepped-up investment in assets that have relatively short service lives, such as computers.

Profit-type return.—The share of gross product accounted for by profit-type return (PTR) declined from 18 percent in 1977 to 9 percent in 1987. This component is more sensitive to changes in general economic conditions than other components. Although generally trending downward, the PTR share of total gross product fluctuated considerably during 1977–87. It averaged about 15 percent in 1978–81 but declined sharply to 7 percent in 1982, when the economic recession caused profits to drop. Manufacturing affiliates—particularly those in nonelectrical machinery, transportation equipment, primary metals, and stone, clay, and glass products—suffered large losses. The profits of petroleum affiliates declined slightly, as crude oil prices began to fall from their 1981 peak.

After 1982, production and profits began to recover. By 1984, the share of gross product accounted for by PTR grew to 13 percent. After 1984, however, the PTR share declined. In each year, sharp decreases in the PTR of different industries accounted for the overall decline. In 1985, manufacturing affiliates' profits decreased. In 1986, petroleum affiliates' PTR declined because of the steep drop in crude oil prices. In 1987, profits in retail trade and finance were down; the decline in retail trade may have reflected the increased debt burden and higher interest expenses associated with leveraged buyouts of several U.S. retailers. (Retail trade was one of the few industries in which the net interest share of gross product increased from 1982 to 1987.) The decline in finance affiliates' PTR probably reflected the sharp decline in stock prices and the divestiture of several affiliates in that year.

Indirect business taxes.—The share of gross product accounted for by indirect business taxes (IBT) declined from 14 percent in 1977 to 12 percent in 1987. This decline partly reflected slower growth in two industries—food manufacturing and petroleum—in which IBT accounted for a large share of gross product. In food manufacturing, the large share mainly reflected excise taxes on alcoholic beverages; production grew slowly, partly because of shifting tastes away from distilled liquors. In petroleum, growth was slow for the reasons discussed earlier.

Net interest.—The share of gross product accounted for by net interest was roughly the same in 1977 and 1987—6 percent and 5 percent, respectively. However, it was as high as 9 percent in 1982. The increase from 1977 to 1982 probably reflected rising interest rates. Following 1982, the net interest share generally declined through 1987. The decline probably reflected falling interest rates and a slight increase in the portion of affiliate operations that was financed with funds from their foreign parent groups. (These funds tend to cost less than externally borrowed funds.) By industry, the net interest share was by far the largest in real estate, where affiliate assets tend to be heavily leveraged.

Comparison With All-U.S.-Business Gross Product

This section examines the U.S. affiliate share of all-U.S.-business gross product and how it has changed since 1977. In addition, distributions of affiliate and all-U.S.-business gross product by component are compared. Certain adjustments were made to the all-U.S.- business data, which are from the national income and product accounts (NIPA's), to make them more comparable to the U.S. affiliate data.[10] Overall, therefore, the affiliate gross product estimates are conceptually consistent with the NIPA estimates. However, it is important to note that the affiliate data are on an enterprise, or company, basis, while those for all U.S. businesses are on an establishment, or plant, basis. Thus, the two sets of data are not

10. Specifically, gross product originating in banks, government and government enterprises, and private households; imputed GDP of owner-occupied farm and nonfarm housing; rental income of persons; business transfer payments; subsidies; and the statistical discrepancy were excluded from the all-U.S.-business data.

strictly comparable at a detailed industry level. Because the sources of data for affiliate and NIPA estimates differ, differences in timing, valuation, and industry classification could also significantly hamper detailed industry comparisons. Despite these limitations, analyses for major industries probably are not significantly affected, and comparisons of the two data sets can provide a picture of the relative shares of all-U.S.- business gross product accounted for by affiliates in the major industries.

U.S. affiliates accounted for 4.3 percent of all-U.S.-business gross product in 1987 (table 4), up from 2.3 percent in 1977. Nearly all of the increase, however, occurred during 1977–81, when growth in affiliate production mainly reflected the rapid pace of acquisitions of U.S. businesses by foreigners. From a relatively small base, affiliate gross product grew during this period at an average annual rate of 29 percent, compared with about 11 percent for all U.S. businesses; thus, the affiliate share of all-U.S.-business gross product rose. Since 1981, however, both affiliate and all-U.S.-business growth have slowed to about the same 7-percent average annual rate, and the affiliate share of all-U.S.-business gross product has remained constant.

By major industry

Despite the increase in the affiliate share of all-U.S.-business gross product since 1977, the share in 1987 remained relatively small. In four industries that accounted for over 60 percent of the all-U.S.-business gross product in 1987—retail trade, real estate, services, and "other industries"—the affiliate share ranged from only 1 percent to 3 percent.[11] In only one major industry, manufacturing, did the affiliate share exceed 10 percent.

In retail trade and services, much of the all-U.S.-business gross product is accounted for by small businesses, such as proprietorships, which usually do not attract foreign investment. In real estate, despite the widely publicized foreign investment in some expensive "trophy" properties—mainly urban office buildings—most investments by foreigners tend to be fairly small; in addition, the vast majority of U.S. commercial properties remain domestically owned. In "other industries," the low affiliate share partly reflects restrictions on foreign investment in some segments of these industries, especially in transportation, communications, and public utilities. Additionally, like retail trade and services, much of the remainder of this industry group consists of small businesses that do not attract foreign investment.

Affiliate shares in manufacturing and finance (except banking) increased sharply from 1977 to 1987—from 5.0 percent to 10.5 percent in manufacturing and from 2.2 percent to 9.4 percent in finance (except banking).[12] In manufacturing, as in all industries combined, virtually all of the increase in share occurred before 1982. Although, for the reasons stated earlier, exact comparisons of affiliate data with all-U.S.-business data are in-

11. "Other industries" consists of agriculture, forestry, and fishing; mining; construction; transportation; and communication and public utilities.

12. In this section, unlike elsewhere in this article, manufacturing includes petroleum refining and coal products, and petroleum is not shown as a separate major industry. Instead, in order to be consistent with the industry classification of the all-U.S.-business data, affiliate gross product in the various petroleum subindustries is distributed among the other major industries. Thus, in table 4, manufacturing includes petroleum refining and coal products, wholesale trade includes petroleum wholesale trade, retail trade includes gasoline service stations, and so on.

Table 4.—Growth in Gross Product of U.S. Affiliates and Gross Domestic Product of All U.S. Businesses, 1977–87

	Millions of dollars						Percent								
	1977		1981		1987		U.S. affiliate share of all-U.S.-business GDP			Average annual growth rate					
										U.S. affiliates			All U.S. businesses		
	Gross product of U.S. affiliates [1]	GDP of all U.S. businesses [2]	Gross product of U.S. affiliates [1]	GDP of all U.S. businesses [2]	Gross product of U.S. affiliates [1]	GDP of all U.S. businesses [2]	1977	1981	1987	1977–81	1981–87	1977–87	1977–81	1981–87	1977–87
All industries	**35,222**	**1,555,047**	**98,828**	**2,364,507**	**151,905**	**3,542,815**	**2.3**	**4.2**	**4.3**	**29**	**7**	**16**	**11**	**7**	**9**
Manufacturing	23,053	464,090	65,886	641,213	88,848	849,560	5.0	10.3	10.5	30	5	14	8	5	6
Wholesale trade	5,250	139,205	12,066	213,090	21,037	311,263	3.8	5.7	6.8	23	10	15	11	7	8
Retail trade	2,310	191,111	6,192	266,787	10,506	422,405	1.2	2.3	2.5	28	9	16	9	8	8
Finance, except banking	238	10,814	1,078	25,714	6,504	69,173	2.2	4.2	9.4	46	35	39	24	18	20
Insurance	925	39,322	2,007	49,764	5,250	100,314	2.4	4.0	5.2	21	17	19	6	12	10
Real estate	429	77,059	2,606	118,708	4,564	194,816	.6	2.2	2.3	57	10	27	11	9	10
Services	1,171	246,099	2,853	413,352	6,655	777,995	.5	.7	.9	25	15	19	14	11	12
Other industries	1,846	387,347	6,140	635,879	8,541	817,289	.5	1.0	1.0	35	6	17	13	4	8

1. In this table, unlike other tables in this article, petroleum is not shown as a separate major industry. Instead, to be consistent with the industry classification of the all-U.S.-business data, affiliate gross product in the various petroleum subindustries is distributed among the other major industries. Thus, manufacturing includes petroleum refining and coal products, wholesale trade includes petroleum wholesale trade, retail trade includes gasoline service stations, and so on.

2. Excludes GDP of banks, of government and government enterprises, and of private households; imputed GDP of owner-occupied farm and nonfarm housing; rental income of persons; business transfer payments; subsidies; and the statistical discrepancy.

NOTE.—For differences in the definitions of affiliate gross product and all-U.S.-business GDP, see the text.

GDP Gross domestic product

appropriate at a detailed industry level, affiliate shares probably increased in most manufacturing subindustries. The increase appears to have been particularly large in chemicals.[13]

In chemicals, the increase in the affiliate share reflected several factors. Rather than exporting to the United States, foreigners may have preferred establishing production facilities here, partly because of the availability of raw material feedstocks, such as petroleum. In addition, foreign pharmaceutical companies may have found it easier to obtain U.S. Federal Government approval of new products by producing them here rather than abroad. Before 1977, foreign chemical manufacturers—mostly European—gained a share of U.S. production mainly by establishing operations in the United States. Since then, they have expanded their U.S. presence primarily through acquisitions of existing companies. Much of this expansion reflected a single acquisition, mentioned earlier, in 1981—that of a minority interest in a major producer of industrial chemicals and synthetics by a Canadian UBO. Since 1982, growth in the affiliate share has slowed partly because numerous acquisitions have been largely offset by the divestiture, mentioned earlier, of the minority interest in the German-owned agricultural chemicals affiliate.

In finance (except banking), most of the increase in the affiliate share of all-U.S.-business gross product resulted from the foreign acquisitions of minority interests in large U.S. finance companies mentioned earlier.

By component

In 1977, the distributions of the components of affiliate and all-U.S.-business gross product were similar and only differed significantly for employee compensation and indirect business taxes (table 5).[14] Although both the affiliate and all-U.S.-business distributions changed between 1977 and 1987, the pattern of change differed mainly for employee compensation and net interest.

The employee compensation share of affiliate gross product increased sharply—from 53 percent to 62 percent—in 1977–87, even though for all U.S. businesses, it increased only slightly, from 58 percent to 59 percent. The share increase for affiliates occurred because, compared with all U.S. businesses, affiliates have become increasingly concentrated in industries—such as manufacturing, finance (except banking), and insurance—in which compensation per employee (CPE) is higher than average, and relatively less concentrated in industries, such as services and retail trade, in which CPE is lower than average. Furthermore, affiliate CPE tends to be higher than all-U.S.-business CPE in the high-CPE industries and to be lower than all-U.S.-business CPE in the low-CPE industries. The affiliate share may also have increased because foreign investors focused their more recent acquisition efforts on large companies, which tend to pay above-average compensation. For example, in finance (except banking), most of the affiliate gross product is accounted for by major securities firms, which generally have very high levels of compensation. Moreover, foreign parents may be shifting more of their higher paid positions, such as those involving financial management and marketing, from abroad to their U.S. affiliates.

The net interest share of affiliate gross product decreased slightly—from 6 percent in 1977 to 5 percent in 1987. The share for all U.S. businesses increased from 4 percent to 6 percent. The different pattern may reflect two factors. First, between 1977 and 1987, affiliates had become relatively more concentrated than all U.S.

Table 5.—Gross Product of U.S. Affiliates and Gross Domestic Product of All U.S. Businesses, by Component, 1977 and 1987

	1977		1987	
	Gross product of U.S. affiliates	GDP of all U.S. businesses [1]	Gross product of U.S. affiliates	GDP of all U.S. businesses [1]
	Millions of dollars			
Total	35,222	1,555,047	151,905	3,542,815
Employee compensation	18,781	907,422	93,652	2,097,461
Profit-type return	6,181	308,542	13,609	472,229
Net interest	2,177	57,778	8,325	207,728
Indirect business taxes, etc	5,025	137,942	18,568	310,393
Capital consumption allowances	3,058	143,363	17,751	455,004
	Percent			
Total	100	100	100	100
Employee compensation	53	58	62	59
Profit-type return	18	20	9	13
Net interest	6	4	5	6
Indirect business taxes, etc	14	9	12	9
Capital consumption allowances	9	9	12	13

1. Excludes GDP of banks, of government and government enterprises, and of private households; imputed GDP of owner-occupied farm and nonfarm housing; rental income of persons; business transfer payments; subsidies; and the statistical discrepancy.

NOTES.—(1) For differences in the definition of affiliate gross product and all-U.S-business GDP, see the text. (2) Details may not add to totals because of rounding.

GDP Gross domestic product

13. This statement is based upon an examination of the two measures of affiliate operations—employment and sales—that are available on an industry-of-sales basis, which approximates an establishment-based classification. The employment data were collected on this basis only for the 2 years—1980 and 1987—for which BEA conducted benchmark surveys of foreign direct investment. By either measure, chemicals had a higher initial share, a faster growth rate, and a higher share in 1987 than any other major manufacturing industry.

14. Conceptual differences between U.S. affiliate and all-U.S.-business gross product components, that is, NIPA components, are discussed in the technical note.

businesses in certain industries—particularly finance (except banking) and insurance—in which the net interest share of gross product is usually very small or negative. Second, although the degree of leverage has increased both for affiliates and all U.S. businesses since 1977, affiliates' interest payments may have been held down by an increase in the portion of borrowed funds that are from their foreign parent groups; these funds are often supplied at interest rates below those charged by financial intermediaries.

Structure of Affiliate Production

The estimates of U.S. affiliate gross product, together with other information on U.S. affiliates' operations, can be used to analyze how affiliates structure their production (table 6). Data on gross product, sales, and inventory change can be used to derive estimates of affiliates' purchases from outside suppliers (i.e., as sales minus gross product plus inventory change). These estimates, together with the data on sales and gross product, can in turn be used to gauge the ex-

Table 6.—Structure of Affiliate Production, by Industry of Affiliate, 1977 and 1987

[Millions of dollars or percent]

	Sales	Gross product	Inventory change	Purchases			Local content of sales [2] (cols. 2+6)	Ratio of gross product to sales plus inventory change (percent) (cols. (2/(1+3)) x 100)	Ratio of merchandise imports to total purchases (percent) (cols. (5/4) x 100)	Ratio of local content to sales (percent) [2] (cols. (7/1) x 100)
				Total (cols. 1–2+3)	Merchandise imports	Other [1] (cols. 4–5)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	1977									
All industries	**193,991**	**35,222**	**2,403**	**161,172**	**43,896**	**117,276**	**152,498**	**18**	**27**	**79**
Petroleum	25,753	7,654	365	18,464	6,094	12,370	20,024	29	33	78
Manufacturing	50,489	16,672	815	34,632	5,624	29,008	45,680	32	16	90
Food and kindred products	6,983	2,603	127	4,507	751	3,756	6,359	37	17	91
Chemicals and allied products	16,303	5,373	211	11,141	986	10,155	15,528	33	9	95
Primary and fabricated metals	6,881	2,010	66	4,937	948	3,989	5,999	29	19	87
Machinery	9,838	3,191	242	6,889	1,896	4,993	8,184	32	28	83
Other manufacturing	10,484	3,494	170	7,160	1,042	6,118	9,612	33	15	92
Wholesale trade	95,151	5,044	926	91,033	31,369	59,664	64,708	5	34	68
Retail trade	8,349	2,310	189	6,228	323	5,905	8,215	27	5	98
Finance, except banking	1,328	238	20	1,110	(D)	(D)	(D)	18	(D)	(D)
Insurance	6,785	925	0	5,860	(*)	5,860	6,785	14	(*)	100
Real estate	935	429	0	506	(*)	506	935	46	(*)	100
Services	1,371	586	9	794	43	751	1,337	42	5	98
Other industries	3,831	1,363	78	2,546	(D)	(D)	(D)	35	(D)	(D)
Addenda:										
Motor vehicles and equipment manufacturing	102	38	4	68	33	35	73	36	49	71
Motor vehicles and equipment wholesale trade	18,182	1,091	212	17,303	9,737	7,566	8,657	6	56	48
Total motor vehicles and equipment	18,284	1,129	216	17,371	9,770	7,601	8,730	6	56	48
	1987									
All industries	**731,392**	**151,905**	**4,671**	**584,158**	**140,617**	**443,541**	**595,446**	**21**	**24**	**81**
Petroleum	74,494	18,786	236	55,944	8,981	46,963	65,749	25	16	88
Manufacturing	220,702	73,796	3,242	150,148	23,420	126,728	200,524	33	16	91
Food and kindred products	22,424	6,222	–54	16,148	1,658	14,490	20,712	28	10	92
Chemicals and allied products	70,238	25,690	570	45,118	5,104	40,014	65,704	36	11	94
Primary and fabricated metals	27,138	7,183	77	20,032	3,856	16,176	23,359	26	19	86
Machinery	38,791	12,373	553	26,971	6,735	20,236	32,609	31	25	84
Other manufacturing	62,112	22,329	2,095	41,878	6,068	35,810	58,139	35	14	94
Wholesale trade	273,887	18,879	1,753	256,761	105,323	151,438	170,317	7	41	62
Retail trade	47,193	10,505	–87	36,601	2,290	34,311	44,816	22	6	95
Finance, except banking	26,465	6,504	–643	19,418	35	19,383	25,887	25	(*)	98
Insurance	39,106	5,250	11	33,867	(*)	33,867	39,117	13	(*)	100
Real estate	10,538	4,564	–71	5,903	7	5,896	10,460	44	(*)	99
Services	18,001	6,498	196	11,699	84	11,615	18,113	36	1	101
Other industries	21,005	7,123	–64	13,818	476	13,342	20,465	34	3	97
Addenda:										
Motor vehicles and equipment manufacturing	5,569	1,484	–429	3,656	1,524	2,132	3,616	29	42	65
Motor vehicles and equipment wholesale trade	84,984	6,712	–1,217	77,055	49,831	27,224	33,936	8	65	40
Total motor vehicles and equipment	90,553	8,196	–1,646	80,711	51,355	29,356	37,552	9	64	41

(D) Suppressed to avoid disclosure of data of individual companies.
(*) Less than $500,000 or 0.5 percent.
1. Includes purchases of goods and services in the United States, and purchases of services from foreigners.
2. "Local content of sales" is overstated to the extent that purchases from domestic suppliers includes merchandise imports and to the extent that they include purchases of services from foreigners that were not reported separately, and thus could not be broken out. As a result, the ratio of local content to sales of the services industry in 1987 exceeds 100 percent.

tent to which affiliates' sales result from their own production (as measured by gross product) or from the production of others (as measured by purchases). In addition, by subtracting affiliates' imports from their total purchases, the portion of total purchases that is from U.S. businesses can be estimated. By summing affiliates' gross product and purchases in the United States, an estimate of the local (U.S.) content of U.S. affiliates' sales can be made; this estimate includes both the affiliates' own production and the production of other U.S. businesses that is used as inputs into the affiliates' production.

The remainder of this section briefly discusses some of these estimates by industry of affiliate to illustrate a few uses of the gross product data.[15] One possible extension of the analysis presented here would be to compare these data by industry to similar data for all U.S. businesses to determine whether affiliates and all U.S. businesses structure their production differently.

The extent to which affiliate sales are provided by the affiliates' own production, rather than by production originating elsewhere, is indicated by the ratio of gross product to sales.[16] This ratio indicates the degree of vertical integration of affiliates; the higher the ratio, the higher the degree of integration. For all industries, the ratio increased from 18 percent in 1977 to 21 percent in 1987. (Consequently, the portion of affiliate sales derived from the production of others declined.) The increase suggests that production in the United States may have become a somewhat more important way for foreign companies to serve the U.S. market during this period. However, the ratio has remained roughly constant at between 21 percent and 22 percent since 1983, perhaps indicating that the degree of vertical integration of affiliates has stabilized or that there have been offsetting industry mix effects.

By industry, the ratio of manufacturing affiliates, which accounted for nearly one-half of affiliate gross product, increased slightly, from 32 percent in 1977 to 33 percent in 1987. Within manufacturing, however, there were larger, mostly offsetting changes. The ratios of affiliates in chemicals and "other manufacturing" increased, while the ratios of affiliates in foods, in primary and fabricated metals, and in machinery decreased. In total motor vehicles and equipment (defined earlier as the sum of motor vehicles equipment manufacturing and wholesale trade), the ratio increased from 6 percent to 9 percent. In wholesale trade, where affiliates mainly distribute, without adding significantly to their value, goods produced by others, the ratio increased from 5 percent to 7 percent, but it remained lower than in any other industry. Its increase may reflect the fact that some affiliates classified in wholesale trade—particularly in motor vehicles and equipment—have expanded into manufacturing and have increased the extent to which their sales resulted from their own production.

If sales by affiliates do not result from their own production, they must result from the production of others, as shown by total purchases by affiliates. This measure can be derived by subtracting affiliate gross product from affiliate sales and adding inventory change.[17] The ratio of imports to total purchases by affiliates indicates the extent to which purchases of goods and services used by the affiliate are provided by imports. For all industries, imports as a percentage of total purchases declined from 27 percent in 1977 to 24 percent in 1987; however, the decline was not continuous. From 1979 to 1983, the import content dropped steadily, mostly because the price (and volume) of imports shipped to petroleum affiliates declined sharply. In 1983–87, however, the import content rose, perhaps in response to the relatively high value of the U.S. dollar, particularly through 1985, which made it cheaper for affiliates to import. (In 1987, the import content rose slightly from 1986, although the dollar declined sharply.)

By industry, the sharp decline in petroleum affiliates' imports-to-total-purchases ratio, from 33 percent in 1977 to 16 percent in 1987, was partly offset by an increase in the ratio in wholesale trade, from 34 percent to 41 percent. The ratio for manufacturing affiliates was unchanged at 16 percent. Within manufacturing, declines in the ratios for food, machinery, and "other manufacturing" affiliates were offset by an increase in the ratio for chemical affiliates. In the total motor vehicles and equipment industry, the ratio increased from 56 percent to 64 percent. The very high, and rising, ratio in 1977–87 probably reflected the significant reliance by these affiliates

15. Data by country of UBO will not be presented in this section because differences among countries in the ratios shown in table 6 mainly reflect variations in the industry mix of affiliates of the UBO's in those countries.

16. Because, as mentioned earlier, affiliate sales can come out of inventory (which may have resulted from affiliate production) or production may be added to inventory, the extent to which affiliate sales are provided by the affiliates' own production is measured in table 6 by comparing gross product to the sum of sales and inventory change, rather than to sales alone. However, because inventory change tends to be very small compared to either gross product or sales, the ratio is referred to in this section as the "gross product to sales" ratio.

17. Affiliate inventory data were not available for yearend 1976; thus, it was necessary to estimate the inventory change for 1977.

on imports both of goods for resale without additional processing and of components to be used in subsequent production.[18]

Inputs to production that are not imported by affiliates are purchased domestically. By adding domestic purchases to the gross product of affiliates and by comparing the sum to affiliate sales, an estimate of the ratio of "local content" to affiliate sales can be derived.[19] Over time, this ratio usually moves inversely to the ratio of imports to total purchases. For all industries, the ratio increased slightly, from 79 percent in 1977 to 81 percent in 1987. However, the 1987 ratio reflects a decline since 1983, when local content was about 85 percent; in recent years, affiliates, like all U.S. businesses, have apparently increased their reliance on imported inputs.

By industry, a large increase in the ratio of local content to sales by petroleum affiliates and a small increase by manufacturing affiliates were partly offset by a large decline in wholesale trade and a smaller decline in retail trade. In petroleum, the ratio rose from 78 percent in 1977 to 88 percent in 1987, because of a slowdown in the use of imports as an input to production. Within manufacturing, the small increase—from 90 to 91 percent—reflected offsetting changes. Increases in foods, machinery, and "other manufacturing" were offset by declines in chemicals and in primary and fabricated metals. In the total motor vehicles and equipment industry, the ratio of local content to sales declined from 48 percent to 41 percent. However, the ratio probably increased in 1988–89, because several manufacturing joint ventures between Japanese and U.S. companies increased U.S. affiliate production during these years. In addition, some foreign parts manufacturers that previously exported goods to the United States have located production facilities here to be closer to their U.S. customers.

18. Additional data on trade of U.S. affiliates in 1987 can be found in *Foreign Direct Investment in the United States: 1987 Benchmark Survey, Preliminary Results.* This publication can be ordered from the U.S. Government Printing Office, Washington, DC (GPO Stock No. 003-010-00188-7, price $5.00).

19. These estimates should be used with caution, because the calculation of "local content" is subject to several qualifications. First, merchandise imports are reported on a "shipped" basis, that is, on the basis of when, where, and to whom the goods were physically shipped. Most affiliates keep their sales data on a "charged" basis, that is, on the basis of when, where, and to whom the goods were charged. Thus, the derived data on purchases are on a "charged" basis and are not completely comparable to the import data. Second, local purchases are overstated to the extent that purchases from domestic suppliers include imports. Third, local purchases are overstated because they include purchases of services from foreigners, which were not reported separately and thus could not be subtracted from total purchases in deriving local purchases.

Technical Note

Data sources

For all years except 1980 and 1987, U.S. affiliate gross product estimates were based on universe estimates derived from sample data from BEA's Annual Survey of Foreign Direct Investment in the United States. For 1980 and 1987, the estimates were based on universe data from BEA's Benchmark Survey of Foreign Direct Investment in the United States.

Estimates of 1987 all-U.S.-business gross product were obtained from table 6.1, GNP by Industry, in the national income and product accounts (NIPA's) tables in the July 1988 SURVEY OF CURRENT BUSINESS. Estimates for 1977 and 1982 were obtained from *The National Income and Product Accounts of the United States, 1929–82: Statistical Tables.*[20]

Estimation

Although most of the data required to obtain affiliate gross product were collected in the BEA surveys mentioned above, several data items had to be estimated for some or all of the years. Capital gains and losses had to be estimated for 1977–79, because, for those years, data on them were not collected in the annual surveys. (Profit-type return (PTR) is measured before capital gains and losses.)

An inventory valuation adjustment (IVA) was estimated for all years and applied to affiliate PTR. The IVA is defined as the excess of the replacement cost of inventories used up over their historical cost. In the NIPA's, the IVA is calculated from information on inventory book values, accounting methods for valuing inventories, and price changes. Because this information is not available for U.S. affiliates, affiliate IVA was estimated.

Except for the benchmark survey years of 1980 and 1987, when data on monetary interest paid and received were collected, it was necessary to estimate these items in order to calculate the net interest component of gross product. In addition, for all years, it was necessary to estimate imputed interest paid and received.

Differences in U.S. affiliate and NIPA gross product components

U.S. affiliate and NIPA gross product components are compared in table 7. In general, the

20. BEA is currently incorporating several improvements into its estimates of GNP by industry; revisions will be available back to 1977. However, most of the improvements relate to the constant-dollar estimates that are published in NIPA table 6.2, GNP by Industry in Constant Dollars. For additional information on these improvements, see SURVEY 69 (June 1989): 2.

U.S. affiliate gross product components are conceptually consistent with the corresponding NIPA components. The net effect of the conceptual differences is about 2 percent of all-U.S.-business GDP. These differences include bad debt, business transfer payments, subsidies, and depreciation of expenditures for mining exploration, shafts, and wells.[21] In addition, both profit-type return and capital consumption allowances (CCA) reflect a conceptual difference in the measure of depreciation; however, its effects are offsetting and do not affect total gross product. NIPA estimates of CCA are, for the most part, based on Federal income tax returns; therefore, valuation of these charges reflects tax accounting practices under Internal Revenue Service regulations.[22] Affiliate depreciation charges, in contrast, are drawn from accounting records on which annual reports are based, which usually do not conform to tax regulations.

21. A comparison of the components was made for 1983 data and is available as part of the supplementary table package discussed in the box below.

22. Two measures of depreciation, or capital consumption, are used in the NIPA's: (1) CCA and (2) CCA with capital consumption adjustment (CCAdj). In contrast to the tax-return-based CCA measure, CCA with CCAdj is based on the use of uniform service lives, straight-line depreciation, and current replacement cost. Because CCA with CCAdj is not available by industry in the NIPA's, CCA is used in the GDP estimates in tables 4 and 5.

The aggregate estimates of affiliate gross product in this article draw upon detailed estimates made available by BEA in a package of tables in January 1990. However, the aggregate estimates incorporate revisions to net interest, and thus to total gross product, for 1981–86, and thus supersede those in the detailed tables. The estimates made available in January contained a discontinuity between 1986 and 1987. The revisions will be incorporated in the detailed tables when the tables are updated to include estimates for 1988.

Table 7.—Comparison of U.S. Affiliate and NIPA Gross Product Components

NIPA component	U.S. affiliate component
Employee compensation	
Wages and salaries	Same as NIPA's
Supplements to wages and salaries	Same as NIPA's
Profit-type return	
Corporate profits and proprietors' income with inventory valuation adjustments (on a tax return basis), both before the following adjustments.	Same as NIPA's (except on an annual report basis)
Bad debt; depreciation of expenditures for mining exploration, shafts, and wells; and other adjustments that could not be made for affiliates.	Not estimated
Net interest	
Monetary interest paid	Same as NIPA's
Imputed interest paid	Same as NIPA's
Less: Monetary interest received	Same as NIPA's
Less: Imputed interest paid	Same as NIPA's
Indirect business taxes	
Indirect business taxes and nontax liability	Same as NIPA's
Business transfer payments	Not estimated
Less: Subsidies	Not estimated
Capital consumption allowances	
Depreciation (on a tax return basis) before the following adjustments	Same as NIPA's (except on an annual report basis)
Depreciation of expenditures for mining exploration, shafts, and wells, and other adjustments that could not be made for affiliates.	Not estimated

NIPA National income and product accounts

Gross Product of U.S. Multinational Companies, 1977–91

By Raymond J. Mataloni, Jr. and Lee Goldberg

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THIS ARTICLE presents estimates of gross product of nonbank U.S. multinational companies (MNC's) based on data collected in Bureau of Economic Analysis (BEA) benchmark and annual surveys of U.S. direct investment abroad. These estimates, in combination with other estimates based on data from BEA surveys, provide insights into production by U.S. MNC's.[1] They can be used, for example, to determine the shares of U.S. and foreign economies that are accounted for by U.S.-MNC production or to determine the foreign content of U.S.-MNC output.

Gross product is an economic accounting measure of the production of goods and services. For a firm, gross product can be measured as its gross output (sales or receipts and other operating income, plus inventory change) less its intermediate inputs (purchased goods and services); as such, gross product measures value added by the firm. Alternatively, gross product can be measured as the sum of costs incurred (other than for intermediate inputs), and profits earned, in production. The costs fall into four major categories: Employee compensation, net interest paid, indirect business taxes, and capital consumption allowance.[2] The estimates presented here were prepared by summing costs and profits.

The gross product estimates for U.S. MNC's, for their parent companies, and for their majority-owned foreign affiliates (MOFA's) are available for the benchmark years 1977, 1982, and 1989; the estimates for MOFA's are also available for 1990 and 1991.[3] [4]

The following are highlights of the estimates:

- Since 1977, there has been a modest shift in U.S. multinational companies' production away from foreign locations, with the foreign share of their total production declining from 25 percent in 1977 to 23 percent in 1989. A decrease in the foreign share in nonmanufacturing industries was partly offset by an increase in the foreign share in manufacturing.
- The U.S-parent share of all-U.S.-business gross domestic product (GDP) declined from 32 percent in 1977 to 26 percent in 1989. Much of this decline reflected the concentration of U.S.-parent production in the slower growing segments of the U.S. economy, rather than a shift of U.S.-MNC production from the United States to foreign countries.

1. It should be noted that the estimates of the gross product of U.S. MNC's are in current dollars; they are not adjusted for price changes or for changes in foreign exchange rates, both of which affect the relationship between changes in current-dollar gross product and changes in the real value of the goods and services produced by U.S MNC's.

2. In the U.S. national income and product accounts (NIPA's), two measures of depreciation, or capital consumption, are used: (1) *Capital consumption allowance* (CCA) and (2) *consumption of fixed capital.* Capital consumption allowance consists of depreciation charges, based largely on tax returns, and allowances for accidental damage to fixed capital. Consumption of fixed capital adds adjustments to CCA in order to place depreciation on an economic basis (that is, using economic service lives, straight-line depreciation, and replacement-cost valuation). For majority-owned foreign affiliates, the only measure of consumption of fixed capital available from BEA's survey data is the book value of depreciation, reported on a basis consistent with U.S. generally accepted accounting principles. Because it does not provide for replacement-cost valuation, this measure is termed "capital consumption allowance" in this article, although it reflects some of the adjustments that determine the difference between the NIPA measures of CCA and consumption of fixed capital. It should be noted that the basis for measuring depreciation has no effect on the value of total gross product; any differences in the measures of depreciation, which is a cost of production, have equal and offsetting effects on the profit-type-return component.

3. The necessary data for calculating U.S.-parent, and thus total U.S.-MNC, gross product are collected only in benchmark surveys. For MOFA's, most of the necessary data are also collected in the annual surveys conducted in nonbenchmark years. Gross product estimates for minority-owned foreign affiliates are not available because most of the data necessary to construct them are not collected.

4. U.S.-MNC gross product estimates for 1977 were previously published in "Gross Product of U.S. Multinational Companies, 1977," SURVEY OF CURRENT BUSINESS 63 (February 1983): 24–29. Estimates for 1966 and 1970 appeared in "Gross Product of Foreign Affiliates of U.S. Companies," SURVEY 57 (February 1977): 17–28.

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- Overall, U.S. parent companies did not increase their use of merchandise imports as inputs. In both 1977 and 1989, the U.S., or "local," content of U.S. parents' output was 94 percent. In manufacturing, however, the local content of parents' output decreased modestly, from 96 percent in 1977 to 93 percent in 1989.
- In 1989, the profitability of MOFA's—measured as the percentage of gross product that is accounted for by profit-type return—was 27 percent, compared with 16 percent for U.S. parents. The higher profitability of MOFA's partly reflected the fact that U.S. MNC's tend to limit their overseas operations to those that are expected to earn above-average profits in order to compensate for the added risks of operating abroad.
- U.S. multinationals do not appear to have shifted manufacturing operations to low-wage countries to any significant degree between 1977 and 1991. In both years, about 85 percent of MOFA gross product in manufacturing was accounted for by relatively high-wage countries.
- For most host countries, the share of the country's GDP that was accounted for by MOFA production was larger than the share of U.S. GDP that was accounted for by that country's U.S. affiliates. For example, MOFA gross product accounted for 7 percent of British GDP in 1991, whereas the U.S. affiliates of British companies accounted for only 1 percent of U.S. GDP.

This article has three parts and a technical note. The first part examines the gross product of U.S. MNC's as a whole, and the other two parts examine the gross product of U.S. parents and of MOFA's, respectively. Within these parts, the structure of U.S.-MNC output, the share of the U.S. economy accounted for by U.S. parents, and the share of host economies accounted for by MOFA's are analyzed. The technical note discusses data sources, estimation procedures, and definitional differences between the estimates of U.S.-MNC gross product and the estimates of U.S. GDP that appear in the national income and product accounts (NIPA's).

Tables 11 and 12, which follow the article, present detailed gross product estimates for U.S. MNC's. Table 11 presents gross product of U.S. MNC's, by industry of U.S. parent, for 1977, 1982, and 1989. Table 12 presents gross product of MOFA's, cross-classified by country and by major industry of affiliate, for 1977, 1982, and 1989–91.

Table 1.—Gross Product of Nonbank U.S. MNC's, U.S. Parents, and MOFA's, Selected Years

	U.S. MNC's worldwide	U.S. parents	MOFA's
Millions of dollars:			
1977	651,665	490,529	161,136
1982	1,019,734	796,017	223,717
1989	1,364,878	1,044,884	319,994
1990	n.a.	n.a.	356,033
1991	n.a.	n.a.	356,069
Percent change at annual rates:			
1977–89	6	7	6
1977–82	9	10	7
1982–89	4	4	5
Share of total MNC gross product (percent):			
1977	100	75	25
1982	100	78	22
1989	100	77	23

n.a. Not available
MNC Multinational company
MOFA Majority-owned foreign affiliate

U.S. MNC's

In 1977–89, total gross product of U.S. MNC's grew at an average annual rate of 6 percent, from $652 billion to $1,365 billion. U.S.-parent and MOFA gross product grew at similar rates, 7 percent and

Key Terms

The following key terms are used to describe the members of U.S. multinational companies.

U.S. multinational company (MNC): The U.S. parent and all of its foreign affiliates. In this article, however, a U.S. MNC consists only of the U.S. parent and its majority-owned foreign affiliates (MOFA's).

U.S. parent: A person, resident in the United States, that owns or controls 10 percent or more of the voting securities, or the equivalent, of a foreign business enterprise. "Person" is broadly defined to include any individual, branch, partnership, associated group, association, estate, trust, corporation or other organization (whether or not organized under the laws of any State), or any government entity. If incorporated, the U.S. parent is the fully consolidated U.S. enterprise consisting of (1) the U.S. corporation whose voting securities are not owned more than 50 percent by another U.S. corporation, and (2) proceeding down each ownership chain from that U.S. corporation, any U.S. corporation (including Foreign Sales Corporations located within the United States) whose voting securities are more than 50 percent owned by the U.S. corporation above it. A U.S. parent comprises the domestic (U.S.) operations of a U.S. MNC.

Foreign affiliate: A foreign business enterprise in which there is U.S. direct investment, that is, in which a U.S. person owns or controls 10 percent or more of the voting securities or the equivalent. Affiliates comprise the foreign operations of a U.S. MNC.

Majority-owned foreign affiliate (MOFA): A foreign affiliate in which the combined ownership of all U.S. parents exceeds 50 percent.

Nonbank: An entity (MNC, parent, or affiliate) whose primary activity is not banking. Only nonbanks are covered by this article.

6 percent, respectively (table 1). By comparison, total private U.S. GDP in current dollars grew at an average annual rate of 9 percent. As discussed later, some of this difference resulted from differences between U.S. MNC's and all U.S. businesses in the industry composition of their gross product.

Between 1977 and 1989, there was a modest shift in U.S.-MNC production away from foreign locations, with the MOFA share of their total production declining from 25 percent in 1977 to 23 percent in 1989. The shift, however, was concentrated in nonmanufacturing industries—mainly petroleum and transportation. In petroleum, the MOFA share of U.S.-MNC production fell from 54 percent to 44 percent, partly reflecting the gradual transfer of MOFA facilities in the Middle East to local investors. In transportation,

Table 2.—Structure of Output of Nonbank U.S. MNC's, by Major Industry of U.S. Parent, 1977, 1982, and 1989

	Millions of dollars							Percent			
								Share of total output accounted for by:			
				Gross product				Gross product			
	Sales to unaffiliated persons	Inventory change	Total output (col.1 + col.2 = col.4 + col.7)	Total	U.S. parents	MOFA's	Purchases from outside the MNC [1] (col.3 – col.4)	Total ((col.4 / col.3) × 100)	U.S. parents ((col.5 / col.3) × 100)	MOFA's ((col.6 / col.3) × 100)	Purchases from outside the MNC ((col.7 / col.3) × 100)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	1977										
All industries	**1,717,181**	**19,881**	**1,737,062**	**651,665**	**490,529**	**161,136**	**1,085,397**	**38**	**28**	**9**	**62**
Petroleum	312,491	3,841	316,332	114,051	52,052	61,999	202,281	36	16	20	64
Manufacturing	891,512	11,737	903,249	382,280	301,286	80,994	520,969	42	33	9	58
Food and kindred products	103,778	890	104,668	27,871	21,782	6,088	76,797	27	21	6	73
Chemicals and allied products	124,868	1,984	126,852	51,547	39,133	12,413	75,305	41	31	10	59
Primary and fabricated metals	104,896	518	105,414	40,209	35,380	4,829	65,205	38	34	5	62
Machinery, except electrical	105,274	2,200	107,474	60,402	42,356	18,046	47,072	56	39	17	44
Electric and electronic equipment	71,815	1,292	73,107	32,105	26,683	5,422	41,002	44	36	7	56
Transportation equipment	196,982	2,210	199,192	88,513	71,302	17,211	110,679	44	36	9	56
Other manufacturing	183,898	2,642	186,540	81,633	64,649	16,983	104,907	44	35	9	56
Wholesale trade	95,959	768	96,727	6,536	5,058	1,478	90,191	7	5	2	93
Finance (except banking), insurance, and real estate	135,375	350	135,725	29,230	22,825	6,404	106,495	22	17	5	78
Services	27,347	91	27,438	11,674	9,950	1,724	15,764	43	36	6	57
Other industries	254,497	3,094	257,591	107,895	99,358	8,537	149,696	42	39	3	58
	1982										
All industries	**2,809,252**	**–14,013**	**2,795,239**	**1,019,734**	**796,017**	**223,717**	**1,775,505**	**36**	**28**	**8**	**64**
Petroleum	716,779	–3,859	712,920	211,937	134,096	77,841	500,983	30	19	11	70
Manufacturing	1,244,342	–10,624	1,233,718	542,689	421,050	121,639	691,029	44	34	10	56
Food and kindred products	152,715	–998	151,717	46,069	35,804	10,265	105,648	30	24	7	70
Chemicals and allied products	226,653	–1,964	224,689	93,054	66,234	26,820	131,635	41	29	12	59
Primary and fabricated metals	116,991	–2,162	114,829	43,592	37,215	6,377	71,237	38	32	6	62
Machinery, except electrical	149,891	–1,043	148,848	84,046	60,597	23,449	64,802	56	41	16	44
Electric and electronic equipment	140,795	–1,300	139,495	69,259	59,323	9,936	70,236	50	43	7	50
Transportation equipment	215,862	–1,149	214,713	91,170	71,256	19,914	123,543	42	33	9	58
Other manufacturing	241,435	–2,010	239,425	115,499	90,621	24,878	123,926	48	38	10	52
Wholesale trade	158,350	–604	157,746	17,427	13,604	3,823	140,319	11	9	2	89
Finance (except banking), insurance, and real estate	219,544	–364	219,180	31,823	22,801	9,022	187,357	15	10	4	85
Services	53,780	–102	53,678	29,362	25,997	3,365	24,316	55	48	6	45
Other industries	416,458	1,541	417,999	186,496	178,469	8,027	231,503	45	43	`2	55
	1989										
All Industries	**3,780,150**	**15,656**	**3,795,806**	**1,364,878**	**1,044,884**	**319,994**	**2,430,928**	**36**	**28**	**8**	**64**
Petroleum	454,570	–335	454,235	165,680	93,128	72,552	288,555	36	21	16	64
Manufacturing	1,949,221	10,151	1,959,372	793,771	586,568	207,203	1,165,601	41	30	11	59
Food and kindred products	238,629	–564	238,065	79,472	60,310	19,162	158,593	33	25	8	67
Chemicals and allied products	321,167	1,745	322,912	141,006	97,119	43,887	181,906	44	30	14	56
Primary and fabricated metals	122,068	610	122,678	45,775	37,556	8,219	76,903	37	31	7	63
Machinery, except electrical	249,741	2,935	252,676	116,146	70,887	45,259	136,530	46	28	18	54
Electric and electronic equipment	169,909	1,898	171,807	68,515	56,139	12,376	103,292	40	33	7	60
Transportation equipment	432,713	1,133	433,846	160,292	121,141	39,151	273,554	37	28	9	63
Other manufacturing	414,994	2,395	417,389	182,567	143,417	39,150	234,822	44	34	9	56
Wholesale trade	254,746	1,234	255,980	28,766	22,587	6,179	227,214	11	9	2	89
Finance (except banking), insurance, and real estate	433,328	–1,058	432,270	62,715	50,535	12,180	369,555	15	12	3	85
Services	125,561	545	126,106	66,999	57,090	9,909	59,107	53	45	8	47
Other industries	562,724	5,119	567,843	246,946	234,975	11,971	320,897	43	41	2	57

1. Includes purchases from minority-owned foreign affiliates, which could not be excluded because the necessary data are unavailable.

MNC Multinational company
MOFA Majority-owned foreign affiliate

the MOFA share decreased from 8 percent to 2 percent, partly reflecting the entrance into the U.S.-MNC universe in the late 1980's of a few U.S. companies, mainly airlines, whose long-established domestic operations were much larger than their newly established foreign operations. In manufacturing, by contrast, the MOFA share of U.S.-MNC production increased from 21 to 26 percent, partly reflecting faster growth in foreign sales than in domestic sales by these U.S. MNC's.

Structure of output

When compared with total U.S.-MNC output, gross product provides insight into the production methods of U.S. MNC's. U.S.-MNC output is equal to sales to unaffiliated persons plus inventory change; alternatively, it can be defined as the gross product of U.S. MNC's plus their purchases from outsiders. Two ratios are particularly useful for examining the structure of output of U.S. MNC's. The ratio of U.S.-MNC gross product to U.S.-MNC output measures the extent to which output by U.S. MNC's reflects their own production rather than that of outside suppliers (table 2, column 8). A second ratio, U.S.-parent gross product as a share of total U.S.-MNC output, measures the extent to which U.S. MNC's produce in the United States rather than purchasing from outsiders or producing through MOFA's (table 2, column 9).

Overall, the structure of U.S.-MNC output changed little from 1977 to 1989. The gross-product share of U.S.-MNC output decreased 2 percentage points, to 36 percent, as U.S. parents, but not MOFA's, increased their reliance on outside suppliers for intermediate goods and services. Similar changes occurred in manufacturing.

Overall, the U.S. parents' gross-product share of total U.S. MNC output was unchanged, at 28 percent, from 1977 to 1989. However, there were a number of offsetting changes among major industry groups. In manufacturing, the U.S. parents' share declined 3 percentage points, partly reflecting faster growth in foreign sales than in domestic sales. This decline was offset by increases in the U.S. parents' share in petroleum, wholesale trade, services, and "other" industries.

U.S. Parents

Gross product of U.S. parents was $1,045 billion in 1989. It accounted for 26 percent of all-U.S.-business GDP, down from 32 percent in 1977 (table 3).[5] [6] Much of this decline reflected the relatively high concentration of U.S. parents in slower growing segments of the economy, such as "petroleum extraction and refining" and manufacturing. In 1989, "petroleum extraction and refining" accounted for 8 percent of U.S.-parent gross product, but for only 2 percent of all-U.S.-business GDP; manufacturing accounted for 56 percent of U.S.-parent gross product, but for only 24 percent of all-U.S.-business GDP (chart 1).[7] [8]

5. For this analysis, the estimates of all-U.S.-business GDP exclude the segments of the U.S. economy in which nonbank parents do not (or cannot) have a presence—including banks, government and government enterprises, and private households. (See footnote 1 to table 3 for additional details.)

6. At the all-industries level, the estimates of U.S.-parent gross product are generally consistent with the estimates of U.S. GDP in the NIPA's (see the technical note). For individual industries, however, inconsistencies may result from differences in the basis for the industrial distribution of the estimates. All-U.S.-business GDP is distributed among industries based on the principal product or service of each establishment, or plant, whereas U.S.-parent gross product is distributed on an enterprise, or company, basis, with each U.S. parent classified on the basis of the principal industry of all its establishments combined. Because establishments of a large company may be classified in different industries, distributions of data by industry of establishment and by industry of enterprise can differ significantly, particularly in the case of data that are highly disaggregated. In this article, U.S.-parent gross product as a share of all-U.S.-business GDP is computed only at the highly aggregated level shown in table 3.

7. For these comparisons, petroleum and coal product manufacturing is excluded from "manufacturing" and included in "petroleum extraction and refining."

8. Changes in the industrial composition of current-dollar GDP may reflect changes in relative prices as well as changes in the composition of the

Table 3.—Gross Product of Nonbank U.S. Parents and GDP of All Nonbank U.S. Businesses, by Major Industry, 1977, 1982, and 1989

	Millions of dollars						Percent		
	1977		1982		1989		U.S.-parent share of all-U.S.-business GDP		
	Gross product of U.S. parents	GDP of all U.S. businesses [1]	Gross product of U.S. parents	GDP of all U.S. businesses [1]	Gross product of U.S. parents	GDP of all U.S. businesses [1]	1977	1982	1989
All industries	**490,529**	**1,520,300**	**796,017**	**2,412,000**	**1,044,884**	**4,028,800**	**32**	**33**	**26**
Petroleum extraction and refining	46,784	51,900	116,157	148,100	85,777	97,300	90	78	88
Manufacturing [2]	301,286	452,900	421,050	622,000	586,568	966,100	67	68	61
Services	9,950	249,800	25,997	463,500	57,090	939,900	4	6	6
All other industries	132,509	765,700	232,813	1,178,400	315,449	2,025,500	17	20	16

1. Excludes GDP of banks, government and government enterprises, and private households, imputed rental income of owner-occupied farm and nonfarm housing; rental income of persons; business transfer payments; subsidies; and the statistical discrepancy.
2. Excludes petroleum and coal product manufacturing, which is included in "petroleum extraction and refining."

NOTE.—The "petroleum extraction and refining" category in this table corresponds to the "petroleum" category in other tables in this article except that it excludes wholesale trade, tanker operations, pipelines, storage for hire, and gasoline service stations. The "manufacturing" and "services" categories in this table correspond to categories of the same name in the other tables in this article.

The growth in gross product by U.S. parents was further depressed by their relatively low concentration in services, a faster growing segment of the economy. Services accounted for 5 percent of U.S.-parent gross product in 1989, compared with 23 percent of all-U.S.-business GDP.

Gross product by component

Table 4 shows U.S.-parent gross product in 1977, 1982, and 1989 by major industry, disaggregated into the five components of costs and profits. In 1989, in all industries combined, employee compensation accounted for 64 percent of U.S.-parent gross product, profit-type return for 16 percent, net interest paid for 3 percent, indirect business taxes for 6 percent, and capital consumption allowances for 12 percent.

In manufacturing and wholesale trade, the component shares of gross product closely mirrored the average component shares of gross product for all industries. However, in petroleum, services, "finance (except banking), insurance, and real estate" (FIRE), and "other" industries, component shares differed considerably from the all-industries averages. In petroleum, employee compensation accounted for a lower-than-average share of U.S.-parent gross product, and indirect business taxes and capital consumption allowances accounted for higher-than-average shares. These differences reflect the capital-intensive nature of petroleum extraction and refining and the relatively high level of excise taxes on petroleum products. In services, the employee-compensation share was higher than average, reflecting the labor-intensive nature of many types of services. In FIRE, the employee-compensation and profit-type-return shares were higher than average, and in "other" industries, the capital-consumption-allowances share was higher than average.

Structure of output

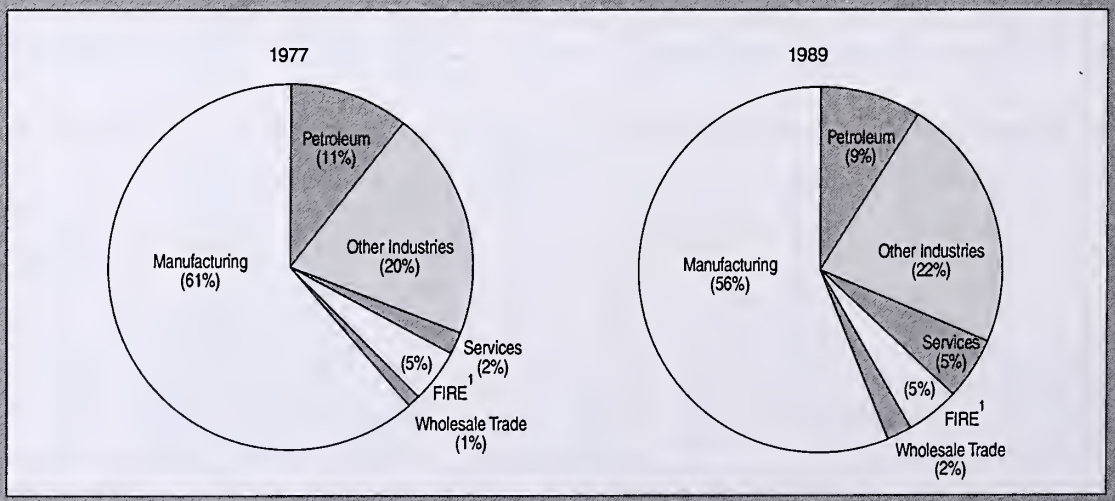
This section examines changes in the structure of U.S.-parent output from 1977 to 1989. Changes in the gross-product share of U.S.-parent output will be examined first, followed by an examination of changes in the local content of U.S.-parent output. It should be noted that from the perspective of a U.S. parent, unlike that of the worldwide U.S. MNC, total purchases (shown in table 5, column 5) includes purchases from foreign affiliates as well as from unaffiliated U.S. and foreign persons.

In all industries combined, the gross-product share of U.S.-parent output edged down from 34 percent in 1977 to 33 percent in 1989. In manufacturing, the gross-product share declined from 40 percent to 38 percent, as the shares of output accounted for by both imports from foreign

goods and services produced. For details, see "Gross Product by Industry, 1977–90," SURVEY 73 (May 1993): 36–37.

CHART 1

Gross Product of Nonbank U.S. Parents, by Major Industry, 1977 and 1989



1. Finance (except banking), insurance, and real estate.

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affiliates and purchases from outside the MNC increased.

Among manufacturing industries, the largest decreases in the gross-product share of U.S.-parent output were in nonelectrical machinery (mainly computers), down 11 percentage points; transportation equipment (mainly automobiles), down 10 percentage points; and electric and electronic equipment, down 4 percentage points. In these industries, the movement by U.S. parents away from internal production and toward greater reliance on outside suppliers may have been in response to increased global competition; to improve their competitiveness, parents may have sought to specialize in areas in which they had an advantage and to allocate other functions to foreign affiliates and to companies outside the MNC. The largest increase in the gross-product share of U.S.-parent output was in food manufacturing, up 6 percentage points.[9]

The local (U.S.) content of U.S.-parents' output—the portion of their output accounted for by their own production and by inputs

9. It should be noted that changes in the gross-product share of U.S.-parent output in a particular manufacturing industry may reflect changes in the U.S. parents' industry composition in addition to actual changes in the structure of U.S.-parent output. As mentioned earlier, the U.S.-parent data are on an enterprise basis; thus, the totals for a particular industry cover both the parents' activities in their primary industry and in their secondary industries. As a result, changes in the gross-product share of output in a particular industry may reflect changes in the composition of the secondary activities of the U.S. parents classified in that industry rather than a tendency for U.S. parents to produce more or less of what they sell in a particular industry. For example, if a U.S. parent classified in wholesale trade (where the ratio of gross product to output is relatively low) ventures into a secondary industry like pharmaceutical manufacturing (where the ratio of gross product to output is relatively high), its gross-product share will rise, even if the purchasing patterns in its primary industry do not change.

Table 4.—Gross Product of Nonbank U.S. Parents, Major Industry by Component, 1977, 1982, and 1989

[Millions of dollars]

	Gross product	Employee compensation	Profit-type return	Net interest	Indirect business taxes, etc.	Capital consumption allowances
	1977					
All industries	**490,529**	**305,504**	**103,375**	**9,823**	**32,642**	**39,185**
Petroleum	52,052	17,093	16,008	2,140	9,913	6,898
Manufacturing	301,286	204,782	58,005	4,363	13,734	20,402
Food and kindred products	21,782	13,142	4,826	519	2,021	1,274
Chemicals and allied products	39,133	22,959	10,023	1,025	1,346	3,781
Primary and fabricated metals	35,380	27,347	2,871	1,143	1,086	2,933
Machinery, except electrical	42,356	28,708	9,552	272	822	3,003
Electric and electronic equipment	26,683	19,210	4,980	309	796	1,388
Transportation equipment	71,302	53,030	12,437	–650	3,108	3,378
Other manufacturing	64,649	40,386	13,317	1,745	4,555	4,646
Wholesale trade	5,058	3,273	881	330	310	264
Finance (except banking), insurance, and real estate	22,825	14,166	8,717	–2,849	1,988	803
Services	9,950	7,066	1,795	238	617	233
Other industries	99,358	59,124	17,969	5,601	6,080	10,585
	1982					
All industries	**796,017**	**520,383**	**121,061**	**10,687**	**63,026**	**80,860**
Petroleum	134,096	43,876	29,341	8,144	34,134	18,601
Manufacturing	421,050	313,068	48,163	6,980	15,586	37,254
Food and kindred products	35,804	22,755	6,919	1,081	2,484	2,565
Chemicals and allied products	66,234	43,102	11,071	1,838	2,683	7,540
Primary and fabricated metals	37,215	31,994	–1,696	2,085	1,194	3,637
Machinery, except electrical	60,597	44,467	7,851	1,489	1,211	5,579
Electric and electronic equipment	59,323	45,975	8,223	–236	962	4,399
Transportation equipment	71,256	64,201	2,162	–1,753	1,604	5,043
Other manufacturing	90,621	60,573	13,634	2,474	5,449	8,491
Wholesale trade	13,604	8,591	2,301	1,088	566	1,058
Finance (except banking), insurance, and real estate	22,801	26,409	9,853	–18,319	3,263	1,595
Services	25,997	18,054	3,832	1,183	600	2,329
Other industries	178,469	110,385	27,571	11,611	8,878	20,024
	1989					
All industries	**1,044,884**	**666,196**	**164,910**	**26,344**	**66,639**	**120,795**
Petroleum	93,128	27,140	15,807	9,086	22,092	19,003
Manufacturing	586,568	393,495	86,214	25,258	21,943	59,658
Food and kindred products	60,310	28,633	14,574	4,886	6,372	5,844
Chemicals and allied products	97,119	54,004	23,389	4,423	3,044	12,258
Primary and fabricated metals	37,556	26,562	6,335	908	986	2,765
Machinery, except electrical	70,887	56,649	1,799	2,397	2,606	7,436
Electric and electronic equipment	56,139	40,398	9,218	–683	1,084	6,121
Transportation equipment	121,141	94,585	11,552	415	2,551	12,037
Other manufacturing	143,417	92,664	19,347	12,911	5,299	13,196
Wholesale trade	22,587	13,982	3,176	1,654	1,656	2,120
Finance (except banking), insurance, and real estate	50,535	46,830	16,406	–22,821	6,667	3,454
Services	57,090	41,414	5,949	3,096	1,767	4,664
Other industries	234,975	143,335	37,358	10,071	12,513	31,697

purchased from other U.S. companies—in all industries was 94 percent in both 1977 and 1989. By industry, there were offsetting changes over the period; local content increased in petroleum and decreased in manufacturing and wholesale trade (table 5, column 14).[10]

10. The precision of this measure of focal content is limited by the following quafifications. First, the measure of domestic, or "other," purchases

Table 5.—Structure of Output of Nonbank U.S. Parents, by Major Industry, 1977, 1982, and 1989

	Millions of dollars										Percent			
					Purchases						Share of total output accounted for by:			
						Merchandise imports								
	Sales	Inventory change	Total output (col.1 + col.2 = col.4 + col.5)	Gross product	Total (col.3 – col.4)	Total	Shipped by foreign affiliates [1]	Shipped by unaffiliated foreign persons	Other [2] (col.5 – col.6)	Local content of output [3] (col.4 + col.9)	U.S. parent gross product ((col.4 / col.3) × 100)	Merchandise imports from foreign affiliates ((col.7 / col.3) × 100)	Purchases from outside the MNC (((col.8 + col.9) / col.3) × 100)	Addendum: Local content ((col.10 / col.3) × 100)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	1977													
All industries	1,412,293	14,155	1,426,448	490,529	935,919	81,500	36,266	45,234	854,419	1,344,948	34	3	63	94
Petroleum	221,757	3,185	224,942	52,052	172,890	37,266	16,496	20,770	135,624	187,676	23	7	70	83
Manufacturing	739,460	7,253	746,713	301,286	445,427	30,247	16,807	13,440	415,180	716,466	40	2	57	96
Food and kindred products	83,422	530	83,952	21,782	62,170	2,219	563	1,656	59,951	81,733	26	1	73	97
Chemicals and allied products	96,474	1,169	97,643	39,133	58,510	2,824	978	1,846	55,686	94,819	40	1	59	97
Primary and fabricated metals	94,563	300	94,863	35,380	59,483	3,116	1,141	1,975	56,367	91,747	37	1	62	97
Machinery, except electrical	80,174	1,463	81,637	42,356	39,281	2,178	1,260	918	37,103	79,459	52	2	47	97
Electric and electronic equipment	62,631	1,038	63,669	26,683	36,986	3,496	2,139	1,357	33,490	60,173	42	3	55	95
Transportation equipment	165,681	994	166,675	71,302	95,373	12,224	8,949	3,275	83,149	154,451	43	5	52	93
Other manufacturing	156,516	1,759	158,275	64,649	93,626	4,188	1,776	2,412	89,438	154,087	41	1	58	97
Wholesale trade	77,683	628	78,311	5,058	73,253	9,824	1,513	8,311	63,429	68,487	6	2	92	87
Finance (except banking), insurance, and real estate	119,596	107	119,703	22,825	96,878	(D)	108	(D)	(D)	(D)	19	(*)	(D)	(D)
Services	23,777	78	23,855	9,950	13,905	(D)	36	(D)	(D)	(D)	42	(*)	(D)	(D)
Other industries	230,020	2,904	232,924	99,358	133,566	(D)	1,306	(D)	(D)	(D)	43	(*)	(D)	(D)
	1982													
All industries	2,348,388	–7,380	2,341,008	796,017	1,544,991	108,651	39,288	69,363	1,436,340	2,232,357	34	2	64	95
Petroleum	570,213	–2,714	567,499	134,096	433,403	52,930	11,027	41,903	380,473	514,569	24	2	74	91
Manufacturing	1,017,591	–6,040	1,011,551	421,050	590,501	41,081	24,959	16,122	549,420	970,470	42	2	56	96
Food and kindred products	119,431	–642	118,789	35,804	82,985	3,060	651	2,409	79,925	115,729	30	1	69	97
Chemicals and allied products	169,628	–981	168,647	66,234	102,413	4,835	1,848	2,987	97,578	163,812	39	1	60	97
Primary and fabricated metals	100,142	–1,635	98,507	37,215	61,292	2,964	1,373	1,591	58,328	95,543	38	1	61	97
Machinery, except electrical	115,679	–558	115,121	60,597	54,524	3,765	2,786	979	50,759	111,356	53	2	45	97
Electric and electronic equipment	126,194	–950	125,244	59,323	65,921	7,137	3,842	3,295	58,784	118,107	47	3	50	94
Transportation equipment	182,242	–31	182,211	71,256	110,955	13,841	12,038	1,803	97,114	168,370	39	7	54	92
Other manufacturing	204,276	–1,244	203,032	90,621	112,411	5,480	2,421	3,059	106,931	197,552	45	1	54	97
Wholesale trade	129,493	–138	129,355	13,604	115,751	9,599	828	8,771	106,152	119,756	11	1	89	93
Finance (except banking), insurance, and real estate	196,492	–79	196,413	22,801	173,612	(D)	105	(D)	(D)	(D)	12	(*)	(D)	(D)
Services	46,745	–69	46,676	25,997	20,679	(D)	23	(D)	(D)	(D)	56	(*)	(D)	(D)
Other industries	387,854	1,661	389,515	178,469	211,046	4,772	2,345	2,427	206,274	384,743	46	1	54	99
	1989													
All industries	3,136,837	13,474	3,150,311	1,044,884	2,105,427	178,526	74,738	103,788	1,926,901	2,971,785	33	2	64	94
Petroleum	328,989	–464	328,525	93,128	235,397	25,976	7,789	18,187	209,421	302,549	28	2	69	92
Manufacturing	1,553,374	6,945	1,560,319	586,568	973,751	106,532	61,122	45,410	867,219	1,453,787	38	4	58	93
Food and kindred products	190,617	254	190,871	60,310	130,561	3,609	966	2,643	126,952	187,262	32	1	68	98
Chemicals and allied products	235,731	817	236,548	97,119	139,429	11,783	3,708	8,075	127,646	224,765	41	2	57	95
Primary and fabricated metals	104,727	346	105,073	37,556	67,517	5,665	2,088	3,577	61,852	99,408	36	2	62	95
Machinery, except electrical	171,239	1,447	172,686	70,887	101,799	16,660	11,763	4,897	85,139	156,026	41	7	52	90
Electric and electronic equipment	146,277	1,132	147,409	56,139	91,270	13,169	5,382	7,787	78,101	134,240	38	4	58	91
Transportation equipment	361,979	1,181	363,160	121,141	242,019	44,973	31,808	13,165	197,046	318,187	33	9	58	88
Other manufacturing	342,804	1,768	344,572	143,417	201,155	10,674	5,407	5,267	190,481	333,898	42	2	57	97
Wholesale trade	226,707	1,249	227,956	22,587	205,369	34,644	2,492	32,152	170,725	193,312	10	1	89	85
Finance (except banking), insurance, and real estate	394,461	1,238	395,699	50,535	345,164	(D)	(D)	357	(D)	(D)	13	(D)	(D)	(D)
Services	106,517	214	106,731	57,090	49,641	508	219	289	49,133	106,223	53	(*)	46	100
Other industries	526,789	4,292	531,081	234,975	296,106	(D)	(D)	7,393	(D)	(D)	44	(D)	(D)	(D)

* Less than 0.5 percent.
D Suppressed to avoid disclosure of data of individual companies.
1. As reported on parents' forms.
2. Includes purchases of goods and services from U.S. residents and purchases of services from foreign residents.
3. The local content of output is overstated to the extent that "other" purchases (column 9) include imported services and that imported merchandise and services are embodied in purchases from domestic suppliers. (These items were not reported separately and thus could not be identified and included in foreign content.)

In manufacturing, the local content of output decreased modestly, from 96 percent in 1977 to 93 percent in 1989. This decrease reflected the substitution of merchandise imports for products that U.S. parents formerly produced themselves. The gross-product share of U.S.-parent output (table 5, column 11) fell 2 percentage points, and the U.S.-import share of U.S.-parent output (table 5, column 6 divided by column 3) increased by a like amount. This decrease in local content appears to have occurred among other U.S. manufacturing companies as well; the share of U.S. gross domestic purchases of goods accounted for by U.S. merchandise imports shipped to companies other than U.S. parents increased from 8 percent in 1977 to 13 percent in 1989.

Judging from the patterns of trade between U.S. parents and MOFA's, this decrease in local content primarily reflected increased imports from high-wage countries (such as Canada and Japan).[11] [12] It does not, therefore, appear to have been primarily a reflection of U.S. parents shifting their production of goods for the U.S. market to low-wage countries. Thirty-seven percent of the increase in imports shipped by MOFA's to U.S. parents came from low-wage countries.

MOFA's

Country and industry trends

In this section, trends in the gross product of MOFA's are examined using estimates from BEA's annual surveys for 1990 and 1991 and from its benchmark surveys for 1977, 1982, and 1989. Gross product by MOFA's in all industries combined was $356 billion in 1991. MOFA's in manufacturing accounted for $182 billion, or just over one-half of the total (chart 2). MOFA's in petroleum accounted for one-quarter of the total, and MOFA's in wholesale trade for about one-eighth. From 1977 to 1991, the share of MOFA gross product in petroleum shrank from 38 percent to 25

used (table 5, column 9) is overstated because merchandise imports (table 5, column 6) includes only the direct merchandise imports of U.S. parents and therefore excludes any imports embodied in purchases from domestic suppliers. Second, merchandise imports are reported on the basis of when, where, and to whom the goods were shipped. Most U.S. parents account for sales on the basis of when, where, and to whom the goods were charged. Thus, the derived data on output (the denominator of the local content ratio) are on a "charged" basis and are not completely comparable to the import data used in deriving the numerator. Third, "other" purchases are overstated because they include purchases of services from foreigners, which are not reported separately and thus could not be subtracted from total purchases.

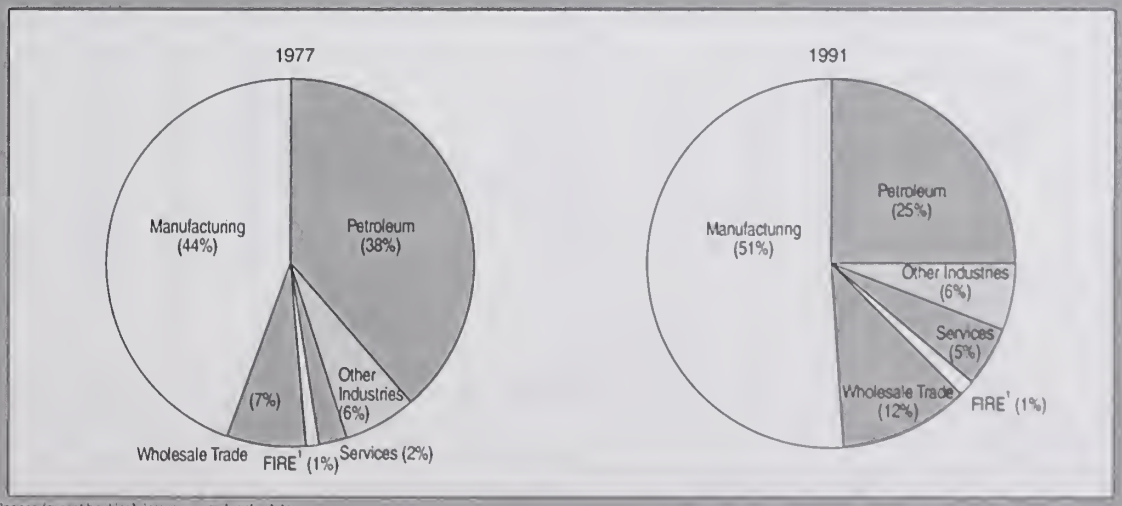
11. Data on imports shipped by unaffiliated foreigners to U.S. parents are not available for individual countries.

12. The distinction between "high-wage" and "low-wage" countries is based on the 1989 estimates of average hourly wages of production workers of MOFA's in the 26 countries that hosted at least 10,000 employees of manufacturing MOFA's in that year. A country was classified as "low wage" if the average hourly compensation of production workers in manufacturing MOFA's was below the MOFA average or as "high wage" if the compensation was above the MOFA average.

The estimates are derived from data collected in the 1989 benchmark survey of U.S. direct investment abroad. For details, see "U.S. Multinational Companies: Operations in 1991," SURVEY 73 (July 1993): 47–48.

CHART 2

Gross Product of Nonbank Majority–Owned Foreign Affiliates, by Major Industry, 1977 and 1991



1. Finance (except banking), insurance, and real estate.

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percent, and the share in manufacturing rose from 44 percent to 51 percent.

Most of MOFA gross product originated in the major industrialized countries. MOFA's in Europe accounted for $218 billion, or 61 percent, of the worldwide total (table 6 and chart 3). Among countries, the United Kingdom was the biggest single host of affiliate production, with $59 billion in gross product, or 17 percent of the total, followed by MOFA's in Germany (14 percent), Canada (13 percent), France (8 percent), Italy (6 percent), and Japan (5 percent).

Outside the principal industrial economies, MOFA's in Brazil and Mexico accounted for the largest shares of gross product—between 2 and 3 percent each. Despite the increasing importance of the newly industrialized countries of the Asia and Pacific region to the U.S. economy, MOFA's in the rapidly growing economies of this region still accounted for a relatively small share of total MOFA gross product. MOFA's in Indonesia, Singapore, and Hong Kong had the largest shares, but each country's share was only about 1 percent of the worldwide total.

Trends in the geographic location of the foreign manufacturing operations of U.S. MNC's do not appear to have been related primarily to differences in labor costs among countries. Of countries with large MOFA employment, the share of MOFA manufacturing gross product for "low-wage" host countries rose slightly, from 15 percent in 1977 to 16 percent in 1991, while the share for "high-wage" countries decreased slightly, from 85 percent to 84 percent.

The most notable changes in the geographic distribution of MOFA gross product since 1977 were an increase in the share of the total accounted for by MOFA's in Europe and a decrease in the share of MOFA's in the Middle East.

Table 6.—Gross Product of Nonbank Majority-Owned Foreign Affiliates, by Country, 1977, 1982, and 1989–91

[Millions of dollars]

	1977	1982	1989	1990	1991
All countries	161,136	223,717	319,994	356,033	356,069
Canada	27,783	34,017	52,114	50,820	47,126
Europe	69,360	112,577	179,758	213,419	217,515
Austria	844	981	2,021	2,380	2,365
Belgium	4,244	5,127	8,540	10,081	9,831
Denmark	672	1,334	1,243	1,476	1,894
Finland	247	574	1,065	1,203	1,125
France	9,688	12,196	22,625	27,410	27,306
Germany [1]	18,115	24,756	35,683	46,969	49,524
Greece	389	497	677	925	1,169
Ireland	762	1,893	4,473	5,416	5,318
Italy	5,825	8,481	16,487	18,967	20,308
Luxembourg	198	235	587	730	672
Netherlands	4,209	5,392	13,214	13,724	13,444
Norway	1,655	4,440	4,164	5,120	4,939
Portugal	178	341	997	1,269	1,507
Spain	2,019	2,571	7,398	8,428	8,308
Sweden	1,103	1,889	2,229	2,128	2,432
Switzerland	2,015	3,198	5,106	6,072	6,756
Turkey	266	152	463	812	848
United Kingdom	16,861	38,465	52,703	60,123	59,494
Other	70	54	83	188	275
Latin America and Other Western Hemisphere	16,036	27,939	29,601	31,080	28,464
South America	10,927	20,358	21,843	22,782	19,188
Argentina	1,449	2,902	1,577	2,603	3,363
Brazil	6,485	11,199	16,618	16,093	11,514
Chile	162	468	681	801	926
Colombia	532	1,361	1,150	1,399	1,278
Ecuador	307	516	272	341	327
Peru	404	1,116	397	412	340
Venezuela	1,370	2,394	736	694	1,080
Other	216	402	412	438	360
Central America	2,879	4,927	6,208	6,947	9,014
Costa Rica	115	163	208	176	192
Guatemala	156	276	158	110	238
Honduras	142	251	287	213	276
Mexico	2,050	3,561	4,883	5,800	7,585
Panama	289	433	530	522	561
Other	127	244	143	126	163
Other Western Hemisphere	2,230	2,654	1,549	1,351	262
Bahamas	157	209	425	286	279
Barbados	25	59	203	193	159
Bermuda	398	82	–113	–210	–727
Dominican Republic	226	122	209	263	270
Jamaica	370	403	455	338	334
Netherlands Antilles	89	189	–244	–506	–802
Trinidad and Tobago	(D)	(D)	497	775	642
United Kingdom Islands, Caribbean	24	23	–10	74	9
Other	(D)	(D)	128	136	97
Africa	8,020	10,055	5,299	6,162	6,074
Egypt	344	1,389	769	1,016	849
Nigeria	1,848	2,219	1,733	2,222	2,239
South Africa	1,317	2,330	701	698	752
Other	4,511	4,117	2,097	2,226	2,235
Middle East	22,260	8,112	4,891	3,206	2,882
Israel	225	280	359	577	632
Saudi Arabia	(D)	3,965	2,735	123	254
United Arab Emirates	1,117	3,060	1,176	1,644	1,475
Other	(D)	808	621	862	521
Asia and Pacific	16,367	28,438	46,875	49,786	52,208
Australia	5,578	10,069	13,902	14,178	12,295
China	2	7	8	114	211
Hong Kong	542	959	2,926	3,122	3,192
India	210	229	157	136	123
Indonesia	4,661	6,317	3,999	4,987	5,031
Japan	3,065	4,587	14,940	14,565	16,517
Korea, Republic of	79	219	726	906	1,031
Malaysia	333	1,691	1,749	1,825	2,016
New Zealand	384	618	985	914	2,264
Philippines	549	1,074	1,006	1,015	1,189
Singapore	400	1,109	2,353	3,547	3,333
Taiwan	260	616	1,938	2,255	2,395
Thailand	254	657	1,815	1,832	2,203
Other	50	288	372	389	408
International [2]	1,311	2,579	1,457	1,559	1,798
Addenda:					
Eastern Europe [3]	0	0	4	(D)	122
European Communities (12) [4]	63,162	101,289	164,628	195,516	198,775
OPEC [5]	32,948	21,801	10,730	10,158	10,492

D Suppressed to avoid disclosure of data of individual companies.

1. Prior to 1990, includes only the Federal Republic of Germany (FRG). Beginning with 1990, also includes the former German Democratic Republic (GDR), which reunited with the FRG in October 1990. This change does not affect the comparability of the 1990 data with the data for earlier years, because no affiliates of U.S. companies were in the former GDR before 1990.

2. "International" affiliates are those that have operations in more than one country and that are engaged in petroleum shipping, other water transportation, or operating movable oil- and gas-drilling equipment.

3. Comprises Albania, Bulgaria, Czechoslovakia, Hungary, Poland, Romania, and the Union of Soviet Socialist Republics.

4. Comprises Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, and the United Kingdom.

5. OPEC is the Organization of Petroleum Exporting Countries. Through yearend 1992, its members were Algeria, Ecuador, Gabon, Indonesia, Iran, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.

European affiliates accounted for three-quarters of the total increase in MOFA gross product between 1977 and 1991; affiliates in the Asia and Pacific region accounted for most of the remainder. In Europe, MOFA gross product grew at an average annual rate of 9 percent from 1977 to 1991; this high growth rate (compared with 6 percent in all countries combined) was about in line with the growth in nominal demand in Europe. European affiliates' share of total MOFA gross product rose from 43 percent in 1977 to 61 percent in 1991. Among the factors that may have contributed to this increase were the expansion of the European Communities (EC) and the movement toward closer economic integration. Economic integration stimulated overall growth in demand; in addition, it offered potential foreign investors a means of accessing a large and increasingly important market on the same terms as local firms, without having to establish production facilities in each country. By locating operations within the EC, a U.S. firm could avoid actual or potential tariffs or other trade barriers applied to nonmember countries.

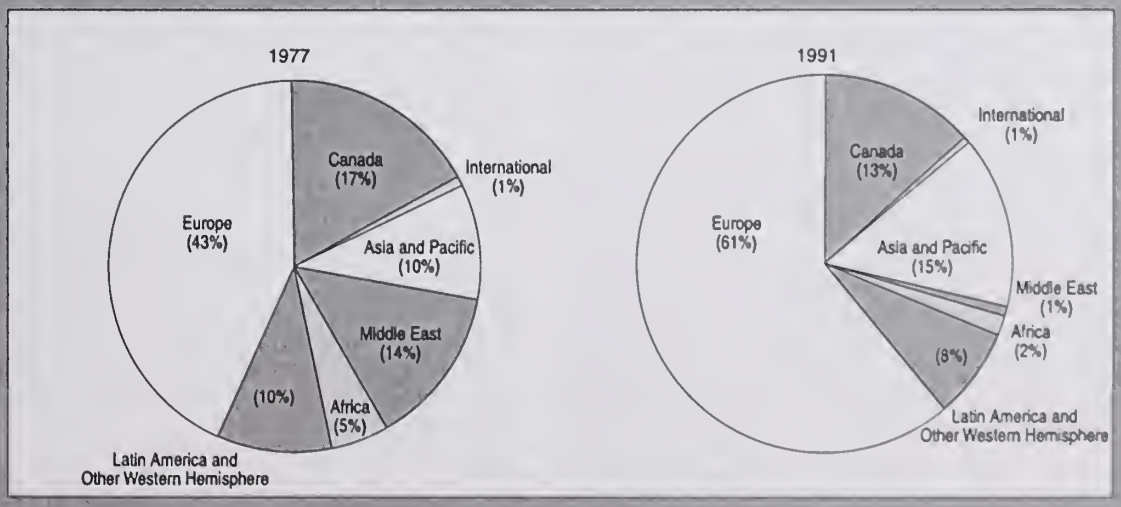
Some of the rise in MOFA gross product in the EC was due to the rapid growth of MOFA's in countries that have smaller economies, such as Spain (which joined the EC in 1986); however, the leading factor was the growth of MOFA's in countries in which U.S. affiliates had long been established, particularly the United Kingdom and Germany. In the United Kingdom, MOFA gross product more than tripled from 1977 to 1991, growing at an average annual rate of 9 percent and accounting for over one-fifth of the worldwide increase in gross product. In Germany, MOFA gross product almost tripled, growing at an average annual rate of 7 percent.

The share of worldwide MOFA gross product accounted for by affiliates in the Middle East fell from 14 percent in 1977 to 1 percent in 1991. This sharp decline mainly reflected falling oil prices in the 1980's and the measures taken by the petroleum exporting countries in the Middle East to increase their own involvement in extraction and refining and to reduce that of foreign-owned firms in the region. Faced with these unfavorable developments, oil companies in the 1980's tended to shift their operations from the Middle East to Europe (mainly the North Sea area) and the Pacific (particularly Australia, Malaysia, and Thailand).

Developments in the oil industry, including a sharp fall in oil prices beginning in 1986 and the sell-off of two large affiliates, also contributed to the decline in Canadian affiliates' share of gross product from 17 percent in 1977 to 13 percent in 1991. However, the decline in Canada primarily reflected sluggish growth in production in manufacturing industries. From 1977 to 1991, the average annual rate of growth in the gross product of Canadian manufacturing affiliates was less than one-half that of manufacturing affiliates in all countries combined—3 percent, compared

CHART 3

Gross Product of Nonbank Majority–Owned Foreign Affiliates, by Area, 1977 and 1991



U.S. Department of Commerce, Bureau of Economic Analysis

with 7 percent; growth slowed for Canadian affiliates in each of the major industries within manufacturing, as well as in all manufacturing industries combined.

Share of host-country GDP

MOFA gross product accounted for only a small share of the GDP of most host countries. Based on World Bank estimates of foreign-country GDP, in 1991, U.S.-MOFA gross product represented 5 percent or less of host-country GDP in all but five countries: Ireland (14 percent), Canada (9 percent), Singapore (8 percent), United Kingdom (7 percent), and Nigeria (7 percent) (table 7).[13] By comparison, nonbank U.S. affiliates of foreign companies for all countries combined accounted for 6 percent of U.S. GDP in 1991; affiliates of the country with the largest share, the United Kingdom, accounted for 1 percent of U.S. GDP, and affiliates of Japan and Canada each accounted for 0.7 percent.

The six largest host economies—Japan, Germany, France, Italy, the United Kingdom, and Canada—together accounted for 62 percent of MOFA gross product in 1991. Among these countries, the MOFA share of host country GDP was largest in Canada (9 percent) and smallest in Japan (0.5 percent).

Canada's large share reflects several factors: Canada's proximity to the United States; its use of the English language; the integration of its automotive, energy, and mineral industries with their U.S. counterparts; and the similarity of U.S. and Canadian technology and tastes. Likewise, the United Kingdom's large share reflects the traditionally close ties between U.S. and British business, which are facilitated by a common language and similar tastes, technology, and regulatory environments.

Among other major industrial countries, Japan, Germany, and France had relatively small shares. Japan's particularly small share (0.5 percent) may reflect several factors: Past Japanese restrictions on foreign investment, informal barriers associated with extensive interlocking stock ownership among major Japanese corporations (which tend to inhibit foreign investment), close ties between business and government, and a business culture that prizes long-term relationships and is averse to buyouts and takeovers. Germany's low share (3 percent) may reflect similar patterns of cross ownership among large German manufacturing concerns and financial institutions. As in Japan's case, France's share (2 percent) may reflect historic restrictions on foreign investment and government ownership and other intervention in significant areas of the economy.

The high share for Ireland probably reflects the relatively small size of its economy, its proximity to the EC, and its considerable efforts to attract foreign direct investment. Several of the other countries with shares of at least 4 percent also have relatively small economies and are situated near a large market.

Table 7.—Gross Product of Nonbank Majority-Owned Foreign Affiliates as a Percentage of GDP of Selected Host Countries, 1991

Ireland	13.6
Canada	9.2
Singapore	8.3
United Kingdom	6.8
Nigeria	6.6
New Zealand	5.3
Belgium	5.0
Hong Kong	4.7
Norway	4.7
Netherlands	4.6
Indonesia	4.3
Malaysia	4.3
Australia	4.1
Germany	3.1
Colombia	3.1
Chile	3.0
Argentina	2.9
Switzerland	2.9
Ecuador	2.8
Egypt	2.8
Brazil	2.8
Mexico	2.7
Philippines	2.6
Thailand	2.4
Portugal	2.3
France	2.3
Venezuela	2.0
Greece	2.0
Italy	1.8
Denmark	1.7
Uruguay	1.6
Spain	1.6
Austria	1.4
Sweden	1.2
Finland	1.0
Israel	1.0
Turkey	.9
South Africa	.8
Peru	.7
Japan	.5
Korea, Republic of	.4
Saudi Arabia	.2
India	.1
China	.1

NOTE.—Host country GDP data are from the 1993 *World Development Report*, published by the World Bank.
GDP Gross domestic product

13. World Bank, *World Development Report 1993* (New York: Oxford University Press, 1993): 242–43. These estimates of GDP were obtained from national sources and are expressed in U.S. dollars.

It should be noted that the MOFA gross product estimates are not strictly comparable with the World Bank statistics because the latter cover banking, government, and other segments of the economy in which nonbank MOFA's do not (or cannot) have operations. Comparability may also be affected by coverage problems or by the use of statistical methods and definitions that differ in some respects from those used in deriving the gross product estimates for MOFA's or that differ from one country to another. (The international System of National Accounts provides guidelines that may alleviate these comparability problems if more countries move into conformity with them.) Thus, the computed MOFA shares of host-country GDP probably provide only a rough indication of the MOFA shares of various host economies.

Gross product by component

Table 8 shows MOFA gross product in 1977, 1982, 1989, and 1991 by major area and industry, disaggregated into the five components. In 1989, profit-type return accounted for a higher portion of gross product for MOFA's than it did for U.S. parents—27 percent, compared with 16 percent). The share of gross product accounted for by indirect business taxes was also higher for MOFA's (25 percent, compared with 6 percent). In contrast, the share accounted for by employee compensation was lower for MOFA's (41 percent, compared with 64 percent). To some extent, the higher profit-type-return share for MOFA's probably reflects the higher rate of return on invested capital for foreign operations than for U.S. operations; U.S. MNC's tend to limit their overseas operations to those that are expected to earn above-average profits in order to compensate for the added risks of operating abroad, such as those associated with currency fluctuations and

Table 8.—Gross Product of Nonbank Majority-Owned Foreign Affiliates, Major Area and Industry of Affiliate by Component, 1977, 1982, 1989, and 1991

[Millions of dollars]

	Gross product	Employee compensation	Profit-type return	Net interest	Indirect business taxes, etc.	Capital consumption allowances	Gross product	Employee compensation	Profit-type return	Net interest	Indirect business taxes, etc.	Capital consumption allowances
	1977						1982					
All areas, all industries	**161,136**	**59,534**	**52,197**	**2,778**	**35,409**	**11,218**	**223,717**	**89,445**	**54,851**	**–406**	**62,290**	**17,538**
By major area												
Canada	27,783	14,465	6,470	231	4,522	2,094	34,017	17,215	6,069	–281	7,883	3,132
Europe	69,360	31,658	13,150	1,546	17,755	5,252	112,577	46,455	20,652	1,180	35,629	8,661
Latin America and Other Western Hemisphere	16,036	5,848	5,189	341	3,370	1,288	27,939	10,970	8,622	–1,877	7,960	2,264
Africa	8,020	965	4,793	28	1,807	428	10,055	1,599	5,130	42	2,766	518
Middle East	22,260	1,417	15,688	25	4,812	317	8,112	3,275	3,844	–59	829	222
Asia and Pacific	16,367	4,765	6,803	357	3,136	1,306	28,438	9,033	9,812	284	7,208	2,101
International	1,311	416	105	250	7	532	2,579	897	722	306	14	641
By major industry												
Petroleum	62,010	4,876	28,978	848	24,143	3,165	85,608	10,336	28,933	977	40,754	4,607
Manufacturing	71,609	40,416	14,852	1,929	8,837	5,575	99,756	56,436	14,254	3,715	16,141	9,210
Food and kindred products	5,598	3,136	1,415	205	521	321	8,884	4,716	2,065	419	1,102	581
Chemicals and allied products	10,075	5,366	2,624	511	693	882	16,429	8,794	3,693	811	1,604	1,527
Primary and fabricated metals	4,231	2,271	890	152	158	311	5,402	3,698	558	291	364	491
Machinery, except electrical	13,555	7,551	3,520	200	630	1,654	17,619	10,182	3,907	592	688	2,251
Electric and electronic equipment	8,062	5,404	1,373	209	657	419	9,876	6,715	1,330	300	848	683
Transportation equipment	13,921	8,127	2,387	225	2,105	1,077	18,055	11,240	–166	745	3,853	2,383
Other manufacturing	16,165	8,109	2,643	429	4,074	910	23,491	11,091	2,867	557	7,683	1,293
Wholesale trade	11,301	5,010	3,511	226	1,399	1,156	19,409	9,534	4,119	255	3,837	1,663
Finance (except banking), insurance, and real estate	1,948	855	1,604	–657	90	56	1,180	1,800	4,524	–6,676	291	240
Services	3,929	2,530	987	5	140	268	8,009	5,250	1,584	–87	453	809
Other industries	10,339	5,847	2,265	427	800	998	9,757	6,088	1,437	409	814	1,008
	1989						1991					
All areas, all industries	**319,994**	**132,565**	**86,524**	**–4,986**	**78,902**	**26,989**	**356,069**	**160,385**	**74,528**	**–7,227**	**96,318**	**32,066**
By major area												
Canada	52,114	26,495	11,496	647	8,883	4,593	47,126	28,127	5,375	839	7,405	5,380
Europe	179,758	75,722	40,701	–2,231	50,394	15,172	217,515	98,800	38,400	–4,228	67,350	17,193
Latin America and Other Western Hemisphere	29,601	10,038	12,624	–3,406	8,174	2,170	28,464	11,468	9,477	–3,921	8,823	2,617
Africa	5,299	683	2,806	119	1,147	543	6,074	783	3,184	139	1,315	653
Middle East	4,891	2,781	1,390	–85	466	339	2,882	767	1,387	–79	498	308
Asia and Pacific	46,875	16,332	17,039	–128	9,827	3,806	52,208	19,944	15,976	–81	10,921	5,449
International	1,457	514	467	99	11	366	1,798	495	730	103	5	465
By major industry												
Petroleum	77,195	9,277	15,176	1,935	44,769	6,038	88,835	8,183	16,413	1,060	55,891	7,287
Manufacturing	173,298	81,732	48,877	1,273	26,251	15,164	182,085	98,168	35,598	115	30,937	17,267
Food and kindred products	13,643	6,147	4,269	290	1,948	988	17,922	8,315	5,981	–7	2,319	1,313
Chemicals and allied products	32,059	13,615	11,716	217	2,583	3,928	32,690	16,734	9,593	19	2,958	3,386
Primary and fabricated metals	7,623	4,135	2,161	212	523	592	7,113	4,582	1,056	263	513	699
Machinery, except electrical	31,720	16,663	10,374	634	1,480	2,570	29,923	19,306	5,698	–202	1,833	3,287
Electric and electronic equipment	12,646	7,651	2,839	173	615	1,369	13,389	9,076	2,072	–74	521	1,794
Transportation equipment	33,764	16,598	8,068	–556	6,461	3,193	33,944	19,755	4,208	55	6,380	3,546
Other manufacturing	41,843	16,923	9,450	305	12,641	2,525	47,104	20,398	6,990	62	16,413	3,242
Wholesale trade	36,760	18,324	10,493	–307	5,951	2,299	41,060	22,170	10,311	–639	6,696	2,522
Finance (except banking), insurance, and real estate	3,439	4,928	6,046	–8,767	504	728	4,739	5,913	5,932	–8,454	574	774
Services	14,509	10,046	2,593	141	510	1,219	18,097	13,126	2,703	–134	685	1,718
Other industries	14,793	8,258	3,339	738	918	1,541	21,253	12,825	3,571	824	1,535	2,498

Table 9.—Structure of Output for Nonbank Majority-Owned Foreign Affiliates, by Major Area and by Major Industry of Affiliate, 1977, 1982, 1989, and 1991

	Millions of dollars										Percent					
					Purchases						Share of total output accounted for by:					
						U.S. exports to MOFA's					Foreign content			U.S. content		
	Sales	Inventory change	Total output (col.1 + col.2 = col.4 + col.5)	Gross product	Total (col.3 – col.4)	Total	Shipped by U.S. parents	Shipped by unaffiliated U.S. persons	Other [1] (col.5 – col.6)	Foreign content of output (col.4 + col.9)	Total ((col.10 / col.3) × 100)	MOFA gross product ((col.4 / col.3) × 100)	Other ((col.9 / col.3) × 100)	Total ((col.6 / col.3) × 100)	U.S. merchandise exports shipped by: U.S. parents ((col.7 / col.3) × 100)	U.S. merchandise exports shipped by: Unaffiliated U.S. persons ((col.8 / col.3) × 100)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	1977															
All areas, all industries	**507,019**	**5,726**	**512,745**	**161,136**	**351,609**	**35,813**	**29,275**	**6,539**	**315,796**	**476,932**	**93**	**31**	**62**	**7**	**6**	**1**
By major area																
Canada	84,659	248	84,907	27,783	57,124	16,201	12,566	3,636	40,923	68,706	81	33	48	19	15	4
Europe	220,213	3,712	223,925	69,360	154,565	10,866	9,468	1,398	143,699	213,059	95	31	64	5	4	1
Latin America and Other Western Hemisphere	58,208	909	59,117	16,036	43,081	3,700	2,908	791	39,381	55,417	94	27	67	6	5	1
Africa	19,023	64	19,087	8,020	11,067	648	508	139	10,419	18,439	97	42	55	3	3	1
Middle East	62,922	198	63,120	22,260	40,860	937	801	136	39,923	62,183	99	35	63	1	1	(*)
Asia and Pacific	47,572	632	48,204	16,367	31,837	3,346	2,935	411	28,491	44,858	93	34	59	7	6	1
International	14,422	–39	14,383	1,311	13,072	115	87	28	12,957	14,268	99	9	90	1	1	(*)
By major industry																
Petroleum	198,624	598	199,222	62,010	137,212	1,639	1,358	282	135,573	197,583	99	31	68	1	1	(*)
Manufacturing	194,200	4,015	198,215	71,609	126,606	25,145	20,510	4,634	101,461	173,070	87	36	51	13	10	2
Food and kindred products	21,756	330	22,086	5,598	16,488	974	454	520	15,514	21,112	96	25	70	4	2	2
Chemicals and allied products	32,396	740	33,136	10,075	23,061	3,007	2,655	351	20,054	30,129	91	30	61	9	8	1
Primary and fabricated metals	11,560	252	11,812	4,231	7,581	845	632	213	6,736	10,967	93	36	57	7	5	2
Machinery, except electrical	28,406	555	28,961	13,555	15,406	3,036	2,810	227	12,370	25,925	90	47	43	10	10	1
Electric and electronic equipment	18,655	328	18,983	8,062	10,921	2,316	1,986	330	8,605	16,667	88	42	45	12	10	2
Transportation equipment	48,686	1,006	49,692	13,921	35,771	11,805	9,483	2,322	23,966	37,887	76	28	48	24	19	5
Other manufacturing	32,741	804	33,545	16,165	17,380	3,161	2,490	671	14,219	30,384	91	48	42	9	7	2
Wholesale trade	64,463	781	65,244	11,301	53,943	7,631	6,607	1,023	46,312	57,613	88	17	71	12	10	2
Finance (except banking), insurance, and real estate	10,002	1	10,003	1,948	8,055	20	13	8	8,035	9,983	100	19	80	(*)	(*)	(*)
Services	9,051	48	9,099	3,929	5,170	201	121	80	4,969	8,898	98	43	55	2	1	1
Other industries	30,679	283	30,962	10,339	20,623	1,177	666	512	19,446	29,785	96	33	63	4	2	2
	1982															
All areas, all industries	**730,235**	**–6,633**	**723,602**	**223,717**	**499,885**	**52,753**	**44,320**	**8,432**	**447,132**	**670,849**	**93**	**31**	**62**	**7**	**6**	**1**
By major area																
Canada	108,038	–1,591	106,447	34,017	72,430	19,413	15,474	3,939	53,017	87,034	82	32	50	18	15	4
Europe	364,405	–3,092	361,313	112,577	248,736	17,211	15,167	2,044	231,525	344,102	95	31	64	5	4	1
Latin America and Other Western Hemisphere	103,857	–1,738	102,119	27,939	74,180	6,479	5,120	1,360	67,701	95,640	94	27	66	6	5	1
Africa	23,596	–37	23,559	10,055	13,504	999	764	234	12,505	22,560	96	43	53	4	3	1
Middle East	16,699	–25	16,674	8,112	8,562	632	438	195	7,930	16,042	96	49	48	4	3	1
Asia and Pacific	105,523	–107	105,416	28,438	76,978	7,907	7,306	601	69,071	97,509	92	27	66	8	7	1
International	8,116	–43	8,073	2,579	5,494	111	52	59	5,383	7,962	99	32	67	1	1	1
By major industry																
Petroleum	266,304	–1,046	265,258	85,608	179,650	2,775	1,784	991	176,875	262,483	99	32	67	1	1	(*)
Manufacturing	271,099	–4,757	266,342	99,756	166,586	34,748	28,882	5,865	131,838	231,594	87	37	49	13	11	2
Food and kindred products	32,585	–314	32,271	8,884	23,387	1,866	948	918	21,521	30,405	94	28	67	6	3	3
Chemicals and allied products	54,840	–798	54,042	16,429	37,613	4,036	3,298	738	33,577	50,006	93	30	62	7	6	1
Primary and fabricated metals	15,015	–462	14,553	5,402	9,151	941	724	216	8,210	13,612	94	37	56	6	5	1
Machinery, except electrical	40,470	–546	39,924	17,619	22,305	4,835	4,566	269	17,470	35,089	88	44	44	12	11	1
Electric and electronic equipment	25,248	–678	24,570	9,876	14,694	4,618	4,133	485	10,076	19,952	81	40	41	19	17	2
Transportation equipment	57,183	–1,076	56,107	18,055	38,052	13,963	11,265	2,698	24,089	42,144	75	32	43	25	20	5
Other manufacturing	45,758	–882	44,876	23,491	21,385	4,488	3,948	540	16,897	40,388	90	52	38	10	9	1
Wholesale trade	113,622	–806	112,816	19,409	93,407	14,063	12,834	1,229	79,344	98,753	88	17	70	12	11	1
Finance (except banking), insurance, and real estate	23,526	–38	23,488	1,180	22,308	15	11	3	22,293	23,473	100	5	95	(*)	(*)	(*)
Services	17,911	38	17,949	8,009	9,940	266	139	127	9,674	17,683	99	45	54	1	1	1
Other industries	37,773	–23	37,750	9,757	27,993	886	669	216	27,107	36,864	98	26	72	2	2	1

See footnotes at end of table.

Table 9.—Structure of Output for Nonbank Majority-Owned Foreign Affiliates, by Major Area and by Major Industry of Affiliate, 1977, 1982, 1989, and 1991—Continued

	Millions of dollars										Percent					
					Purchases						Share of total output accounted for by					
						U.S. exports to MOFA's					Foreign content			U.S content		
	Sales	Inventory change	Total output (col.1 + col.2 = col.4 + col.5)	Gross product	Total (col.3 – col.4)	Total	Shipped by U.S. parents	Shipped by unaffiliated U.S. persons	Other [1] (col.5 – col.6)	Foreign content of output (col.4 + col.9)	Total ((col.10 / col.3) × 100)	MOFA gross product ((col.4 / col.3) × 100)	Other ((col.9 / col.3) × 100)	Total ((col.6 / col.3) × 100)	U.S. merchandise exports shipped by: U.S. parents ((col.7 / col.3) × 100)	U.S. merchandise exports shipped by: Unaffiliated U.S. persons ((col.8 / col.3) × 100)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	1989															
All areas, all industries	1,019,966	2,182	1,022,148	319,994	702,154	97,488	86,050	11,437	604,666	924,660	90	31	59	10	8	1
By major area																
Canada	173,251	1,309	174,560	52,114	122,446	37,843	32,050	5,792	84,603	136,717	78	30	48	22	18	3
Europe	573,270	–813	572,457	179,758	392,699	29,888	27,585	2,303	362,811	542,569	95	31	63	5	5	(*)
Latin America and Other Western Hemisphere	87,014	530	87,544	29,601	57,943	11,236	9,495	1,741	46,707	76,308	87	34	53	13	11	2
Africa	11,576	–267	11,309	5,299	6,010	(D)	(D)	(D)	(D)	(D)	(D)	47	(D)	(D)	(D)	(D)
Middle East	8,021	–43	7,978	4,891	3,087	367	288	78	2,720	7,611	95	61	34	5	4	1
Asia and Pacific	161,640	1,444	163,084	46,875	116,209	17,491	16,136	1,355	98,718	145,593	89	29	61	11	10	1
International	5,196	22	5,218	1,457	3,761	(D)	(D)	(D)	(D)	(D)	(D)	28	(D)	(D)	(D)	(D)
By major industry																
Petroleum	179,420	602	180,022	77,195	102,827	2,462	1,869	593	100,365	177,560	99	43	56	1	1	(*)
Manufacturing	509,308	4,299	513,607	173,298	340,309	66,493	57,707	8,786	273,816	447,114	87	34	53	13	11	2
Food and kindred products	50,791	–245	50,546	13,643	36,903	2,078	1,465	613	34,825	48,468	96	27	69	4	3	1
Chemicals and allied products	94,652	421	95,073	32,059	63,014	7,342	6,500	842	55,672	87,731	92	34	59	8	7	1
Primary and fabricated metals	21,032	–51	20,981	7,623	13,358	1,756	1,409	348	11,602	19,225	92	36	55	8	7	2
Machinery, except electrical	100,319	1,073	101,392	31,720	69,672	11,682	10,837	845	57,990	89,710	88	31	57	12	11	1
Electric and electronic equipment	39,678	658	40,336	12,646	27,690	8,122	7,286	837	19,568	32,214	80	31	49	20	18	2
Transportation equipment	114,391	1,000	115,391	33,764	81,627	27,874	23,841	4,032	53,753	87,517	76	29	47	24	21	3
Other manufacturing	88,444	1,442	89,886	41,843	48,043	7,639	6,370	1,269	40,404	82,247	92	47	45	8	7	1
Wholesale trade	204,295	105	204,400	36,760	167,640	26,797	25,247	1,550	140,843	177,603	87	18	69	13	12	1
Finance (except banking), insurance, and real estate	51,137	–3,203	47,934	3,439	44,495	1	(*)	(*)	44,494	47,933	100	7	93	(*)	(*)	(*)
Services	32,466	202	32,668	14,509	18,159	448	388	60	17,711	32,220	99	44	54	1	1	(*)
Other industries	43,342	178	43,520	14,793	28,727	1,286	838	448	27,441	42,234	97	34	63	3	2	1
	1991															
All areas, all industries	1,240,880	–803	1,240,077	356,069	884,008	108,787	95,691	13,096	775,221	1,131,290	91	29	63	9	8	1
By major area																
Canada	176,996	–1,040	175,956	47,126	128,830	39,522	32,831	6,690	89,308	136,434	78	27	51	22	19	4
Europe	733,584	–880	732,704	217,515	515,189	34,318	31,229	3,089	480,871	698,386	95	30	66	5	4	(*)
Latin America and Other Western Hemisphere	102,090	130	102,220	28,464	73,756	14,380	12,781	1,600	59,376	87,840	86	28	58	14	13	2
Africa	13,513	62	13,575	6,074	7,501	485	336	149	7,016	13,090	96	45	52	4	2	1
Middle East	7,849	53	7,902	2,882	5,020	309	190	118	4,711	7,593	96	36	60	4	2	1
Asia and Pacific	200,461	825	201,286	52,208	149,078	19,739	18,293	1,445	129,339	181,547	90	26	64	10	9	1
International	6,387	47	6,434	1,798	4,636	34	30	4	4,602	6,400	99	28	72	1	(*)	(*)
By major industry																
Petroleum	238,336	17	238,353	88,835	149,518	2,963	2,311	652	146,555	235,390	99	37	61	1	1	(*)
Manufacturing	595,686	–979	594,707	182,085	412,622	72,681	62,664	10,017	339,941	522,026	88	31	57	12	11	2
Food and kindred products	67,968	420	68,388	17,922	50,466	1,846	1,329	517	48,620	66,542	97	26	71	3	2	1
Chemicals and allied products	113,182	189	113,371	32,690	80,681	8,260	7,028	1,232	72,421	105,111	93	29	64	7	6	1
Primary and fabricated metals	22,053	–384	21,669	7,113	14,556	1,729	1,329	400	12,827	19,940	92	33	59	8	6	2
Machinery, except electrical	112,724	–771	111,953	29,923	82,030	12,775	11,862	913	69,255	99,178	89	27	62	11	11	1
Electric and electronic equipment	47,504	73	47,577	13,389	34,188	9,172	8,470	702	25,016	38,405	81	28	53	19	18	1
Transportation equipment	127,545	–214	127,331	33,944	93,387	29,271	24,586	4,685	64,116	98,060	77	27	50	23	19	4
Other manufacturing	104,710	–293	104,417	47,104	57,313	9,628	8,060	1,568	47,685	94,789	91	45	46	9	8	2
Wholesale trade	227,485	–173	227,312	41,060	186,252	31,152	29,289	1,863	155,100	196,160	86	18	68	14	13	1
Finance (except banking), insurance, and real estate	65,896	–13	65,883	4,739	61,144	38	29	9	61,106	65,845	100	7	93	(*)	(*)	(*)
Services	45,651	–13	45,638	18,097	27,541	578	497	80	26,963	45,060	99	40	59	1	1	(*)
Other industries	67,825	360	68,185	21,253	46,932	1,375	899	475	45,557	66,810	98	31	67	2	1	1

(D) Suppressed to avoid disclosure of individual company data.
(*) Less than 0.5 percent.
1. Includes purchases of goods and services from foreign residents and purchases of services from U.S. residents
MOFA Majority-owned foreign affiliate

the possibility of changes in the regulatory or policy environment.[14]

The higher share of indirect business taxes for MOFA's may partly reflect the fact that the taxes on petroleum products imposed by many foreign governments are higher than those imposed by the U.S. Government. In 1989, the indirect-business-taxes share of gross product for MOFA's in petroleum was 58 percent, whereas it was only 24 percent for U.S. parents in this industry.

The factors underlying the differences in the profit-type-return and indirect-business-taxes shares between MOFA's and U.S. parents may also underlie the differences in the employee-compensation shares, because a higher (lower) share for one component necessarily means a lower (higher) share for other components. In addition, the employee-compensation share may be more directly affected by the tendency of MOFA's to be in less labor-intensive industries. For example, 25 percent of MOFA gross product was in petroleum, an industry with relatively low labor intensity, whereas only 9 percent of U.S. parent gross product was in this industry. The employee-compensation share for MOFA's may also tend to be lower because average hourly wage rates in many countries where MOFA's operate are lower than those in the United States.

Among the four major regions that accounted for 97 percent of MOFA gross product in 1991—Canada, Europe, Latin America and Other Western Hemisphere, and Asia and Pacific—the employee-compensation share of MOFA gross product was highest in Canada (60 percent), followed by Europe (45 percent), Latin America and Other Western Hemisphere (40 percent), and Asia and Pacific (38 percent). In contrast, the profit-type-return share of gross product was lowest in Canada (11 percent) and Europe (18 percent) and highest in Latin America and Other Western Hemisphere (33 percent) and Asia and Pacific (30 percent). Canada's employee-compensation share was unusually high in 1991, and its profit-type-return share unusually low. This unusual distribution may have reflected the country's economic recession; in other years, Canada's distribution was more in line with that of other major areas.[15]

Structure of output

This section examines the changes in the gross-product share of MOFA output and the changes in the U.S. content of MOFA output from 1977 to 1991. In all industries combined, the gross-product share of MOFA output decreased from 31 percent to 29 percent (table 9). By area, the largest decreases were in Asia and Pacific and in Canada.

In manufacturing, the gross-product share of MOFA output decreased from 36 percent to 31 percent, as the portion of output accounted for by purchases from other foreign persons (table 9, column 13) increased. Among manufacturing industries, the largest decreases in the gross-product share of MOFA output were in nonelectrical machinery (mainly computers) and in electric and electronic equipment.

In all industries combined, the U.S. content of MOFA output—that portion of MOFA output represented by purchases from U.S. parents and other U.S. sources—rose from 7 percent to 9 percent. By area, the largest increases in U.S. content were in Latin America and in Asia and Pacific. In Latin America (primarily Mexico), the U.S. content more than doubled, from 6 percent to 14 percent. This increase largely reflected rising U.S. merchandise exports to MOFA's participating in the Mexican Government's *maquiladora* program.[16] Consequently, much of the increase in U.S. content represented unfinished goods that ultimately returned to the United States after further processing or assembly in Mexico.[17] In Asia and Pacific (primarily Japan), the U.S. content rose from 7 percent in 1977 to 10 percent in 1991. Much of this increase reflected U.S. parents' exports of finished goods to MOFA's engaged in wholesale trade.

In manufacturing, the U.S. content of MOFA output edged down from 13 percent in 1977 to 12 percent in 1991. The changes in all of the major manufacturing industries except electric and electronic equipment were equally modest. In electric and electronic equipment, the U.S. content increased substantially, from 12 percent to 19 percent, partly reflecting an increase in ship-

14. For additional discussion, see "Rates of Return on Direct Investment," SURVEY 72 (August 1992): 79–86.

15. Cyclical downturns tend to depress profits more than payroll because many firms tend to maintain their labor force and wage structure in anticipation of an eventual upturn.

16. Under this program, U.S. producers can export components free of customs duties to Mexican affiliates for assembly if a certain percentage of the finished goods are exported back to the United States. U.S. duties are levied only on the value added in Mexico.

17. The increase in the U.S. content of Mexican affiliates' output may be somewhat overstated because of differences between the valuation of MOFA sales and the valuation of U.S. exports shipped to MOFA's. U.S. exports shipped to MOFA's measure the goods' full market value; in contrast, sales by some MOFA's participating in the *maquiladora* program measure only the fees paid to the affiliates for processing or assembling the goods (thus excluding the value of inputs received from the U.S. parents).

ments to MOFA's of components for assembly and reexport to the United States.

Technical Note

Data sources

The 1977, 1982, and 1989 gross product estimates for U.S. parents and MOFA's are based on universe data from BEA's benchmark surveys of U.S. direct investment abroad. The first three columns of table 10 present the U.S. MNC, U.S. parent, and MOFA estimates of gross product components from the 1989 benchmark survey; the next two columns indicate the location of the estimates in *U.S. Direct Investment Abroad: 1989 Benchmark Survey, Final Results* (U.S. Government Printing Office, Washington, DC: October 1992). MOFA gross product estimates for 1990 and 1991 are mainly based on universe estimates derived from sample data from BEA's annual surveys of U.S. direct investment abroad.

Estimation

Most of the data required to estimate U.S.-MNC gross product were collected in the BEA surveys, but data for several items were not collected; these items had to be estimated for some or all of the years. For both U.S. parents and MOFA's, imputed interest received and paid had to be estimated for all years; these items do not represent actual transactions, so data on them cannot be collected. For MOFA's, monetary interest received and paid also had to be estimated for the two nonbenchmark years, 1990 and 1991.

In constructing table 5 (structure of output for U.S. parents), the "inventory change" component had to be estimated for 1982 and 1989 because opening balances for inventories for those years were not collected. These estimates were derived using data from the Census Bureau's *Quarterly Financial Report*, which covers all U.S. businesses.

Definitional differences between U.S.-MNC and NIPA gross product components

In general, the MNC gross product components are conceptually consistent with the corresponding NIPA components. The last column of table 10 highlights definitional differences between MNC and NIPA gross product components. The net effect of these differences is negligible because their individual effects are largely offsetting and because each one is quite small in relation to total GDP.

Tables 11 and 12 follow.

Table 10.—U.S.-MNC Gross Product Methodology and Its Relation to NIPA Methodology

	1989 estimates (millions of dollars)			Location of estimates in 1989 benchmark survey publication[1] (table and column number)		How MNC definition compares with NIPA definition
	U.S. MNC's	U.S. parents	MOFA's	U.S. parents	MOFA's	
Total gross product	**1,364,878**	**1,044,884**	**319,994**			
Employee compensation	**798,761**	**666,196**	**132,565**			Same as NIPA's.
Wages and salaries	645,986	538,857	107,129	II.P 1 (4)	III.G 1 (5)	
Plus: Employee benefit plans	152,775	127,339	25,436	II.P 1 (5)	III.G 1 (6)	
Profit-type return (PTR)	**251,434**	**164,910**	**86,524**			(1) Based on financial accounting practices; NIPA PTR is based on tax accounting practices. (2) Excludes inventory valuation and capital consumption adjustments, and certain other adjustments.
Net income	242,805	170,663	72,142	II.N 1 (10)	III.E 1 (11)	
Plus: Income taxes	93,737	60,446	33,291	II.N 1 (8)	III.E 1 (9)	
Plus: Depletion	7,436	5,234	2,202	II.M 1 (5)	III.D 1 (5)	
Less: Capital gains and losses	24,185	22,056	2,129	II.N 1 (4)	III.E 1 (5)	
Less: Income from equity investments	68,358	49,377	18,981	II.N 1 (3)	III.E 1 (3+4)	
Net interest paid	**21,358**	**26,344**	**-4,986**			Same as NIPA's.
Monetary interest paid	182,381	155,147	27,234	II.S 1 (2)	III.J 1 (2)	
Plus: Imputed interest paid	22,542	21,299	1,243	estimated	estimated	
Less: Monetary interest received	171,278	141,578	29,700	II.S 1 (1)	III.J 1 (1)	
Less: Imputed interest received	12,288	8,525	3,763	estimated	estimated	
Indirect business taxes, etc.	**145,541**	**66,639**	**78,902**			Excludes business transfer payments.
Taxes other than income and payroll taxes	140,772	64,028	76,744	II.S 1 (7)	III.J 1 (4)	
Plus: Production royalty payments to governments	5,895	2,610	3,285	II.S 1 (4+5)	III.J 1 (3)	
Less: Subsidies received	1,127	[2]0	1,127	n.a.	III.J 1 (5)	
Capital consumption allowances (CCA)	**147,784**	**120,795**	**26,989**			(1) Based on financial accounting practices; NIPA CCA is based on tax accounting practices. (2) Excludes depreciation expenditures for mining exploration, shafts and wells, and certain other adjustments.
Depreciation	147,784	120,795	26,989	II.M 1 (6)	III.D 1 (6)	

n.a. Not available.

1. U.S. Department of Commerce, Bureau of Economic Analysis, *U.S. Direct Investment Abroad: 1989 Benchmark Survey, Final Results* (Washington, DC: U.S. Government Printing Office, 1992).

2. Data on subsidies received by U.S. parent companies were not collected in the 1989 benchmark survey. Subsidies are assumed to be zero because few U.S. parents were in industries that receive most of the subsidies in the United States.

NOTE.—U.S. MNC gross product excludes the following because they are beyond the scope of direct investment: Gross product of government and government enterprises and private households; imputed rental income of owner-occupied farm and nonfarm housing; and rental income of persons. The U.S. MNC estimates also exclude banks.

MOFA Majority-owned foreign affiliate

NIPA National income and product accounts

Table 11.—Gross Product of Nonbank U.S. MNC's, by Industry of U.S. Parent, 1977, 1982, and 1989

	Amount (millions of dollars)									MOFA share of MNC total (percent)		
	U.S. MNC's worldwide			U.S. parents			MOFA's					
	1977	1982	1989	1977	1982	1989	1977	1982	1989	1977	1982	1989
All industries	**651,665**	**1,019,734**	**1,364,878**	**490,529**	**796,017**	**1,044,884**	**161,136**	**223,717**	**319,994**	**25**	**22**	**23**
Petroleum	**114,051**	**211,937**	**165,680**	**52,052**	**134,096**	**93,128**	**61,999**	**77,841**	**72,552**	**54**	**37**	**44**
Oil and gas extraction	4,384	14,767	4,371	3,546	11,333	3,352	838	3,434	1,019	19	23	23
Crude petroleum extraction (no refining) and natural gas	3,052	5,034	3,211	2,368	4,324	2,918	685	710	293	22	14	9
Oil and gas field services	1,332	9,733	1,160	1,178	7,009	434	154	2,724	726	12	28	63
Petroleum and coal products	101,137	175,425	151,174	43,238	104,824	82,425	57,899	70,601	68,749	57	40	45
Integrated petroleum refining and extraction	100,837	174,483	147,690	42,941	104,068	79,831	57,896	70,415	67,859	57	40	46
Petroleum refining without extraction	(D)	(D)	(D)	(D)	(D)	(D)	–5	(D)	(D)	(D)	(D)	(D)
Petroleum and coal products, nec	(D)	(D)	(D)	(D)	(D)	(D)	–8	(D)	(D)	(D)	(D)	(D)
Petroleum wholesale trade	5,109	18,385	9,785	2,193	14,828	7,158	2,917	3,557	2,627	57	19	27
Other	3,420	3,361	350	3,075	3,111	193	345	250	157	10	7	45
Manufacturing	**382,280**	**542,689**	**793,771**	**301,286**	**421,050**	**586,568**	**80,994**	**121,639**	**207,203**	**21**	**22**	**26**
Food and kindred products	27,871	46,069	79,472	21,782	35,804	60,310	6,088	10,265	19,162	22	22	24
Grain mill and bakery products	4,976	6,183	11,957	4,088	5,023	9,990	887	1,160	1,967	18	19	16
Beverages	5,016	7,661	20,941	3,905	6,268	16,477	1,111	1,393	4,464	22	18	21
Other	17,879	32,225	46,574	13,789	24,513	33,843	4,090	7,712	12,731	23	24	27
Chemicals and allied products	51,547	93,054	141,006	39,133	66,234	97,119	12,413	26,820	43,887	24	29	31
Industrial chemicals and synthetics	28,970	47,841	64,665	23,320	34,419	43,889	5,650	13,422	20,776	20	28	32
Drugs	11,259	21,828	43,656	7,697	14,589	30,448	3,562	7,239	13,208	32	33	30
Soap, cleaners, and toilet goods	7,486	14,287	20,174	4,911	9,712	13,123	2,575	4,575	7,051	34	32	35
Agricultural chemicals	(D)	4,070	2,812	(D)	3,272	2,156	(D)	798	656	(D)	20	23
Chemical products, nec	(D)	5,029	9,698	(D)	4,242	7,503	(D)	787	2,195	(D)	16	23
Primary and fabricated metals	40,209	43,592	45,775	35,380	37,215	37,556	4,829	6,377	8,219	12	15	18
Primary metal industries	27,318	23,046	27,195	24,800	20,349	22,276	2,518	2,697	4,919	9	12	18
Ferrous	19,065	13,659	8,439	18,227	13,103	7,899	838	556	540	4	4	6
Nonferrous	8,253	9,387	18,756	6,573	7,246	14,377	1,680	2,141	4,379	20	23	23
Fabricated metal products	12,890	20,546	18,580	10,579	16,866	15,280	2,311	3,680	3,300	18	18	18
Machinery, except electrical	60,402	84,046	116,146	42,356	60,597	70,887	18,046	23,449	45,259	30	28	39
Farm and garden machinery	3,388	3,532	(D)	2,793	3,039	(D)	595	493	(D)	18	14	(D)
Construction, mining, and materials handling machinery	10,534	12,171	9,937	8,425	9,850	7,921	2,109	2,321	2,016	20	19	20
Computer and office equipment	30,263	49,733	74,449	17,621	32,221	39,566	12,642	17,512	34,883	42	35	47
Other	16,218	18,609	(D)	13,518	15,487	(D)	2,700	3,122	(D)	17	17	(D)
Electric and electronic equipment	32,105	69,259	68,515	26,683	59,323	56,139	5,422	9,936	12,376	17	14	18
Household appliances	3,639	3,877	5,256	2,634	3,128	3,556	1,005	749	1,700	28	19	32
Household audio and video, and communication equipment	7,859	25,221	34,569	7,084	21,952	29,531	775	3,269	5,038	10	13	15
Electronic components and accessories	3,456	10,844	13,095	2,784	9,364	9,814	672	1,480	3,281	19	14	25
Electrical machinery, nec	17,151	29,317	15,595	14,181	24,879	13,238	2,970	4,438	2,357	17	15	15
Transportation equipment	88,513	91,170	160,292	71,302	71,256	121,141	17,211	19,914	39,151	19	22	24
Motor vehicles and equipment	62,507	53,350	97,948	47,979	36,260	65,303	14,528	17,090	32,645	23	32	33
Other	26,006	37,820	62,343	23,323	34,996	55,837	2,683	2,824	6,506	10	7	10
Other manufacturing	81,633	115,499	182,567	64,649	90,621	143,417	16,983	24,878	39,150	21	22	21
Tobacco products	9,841	19,527	20,832	6,023	11,645	11,782	3,818	7,882	9,050	39	40	43
Textile products and apparel	9,198	10,450	11,549	8,079	9,432	10,098	1,119	1,018	1,451	12	10	13
Lumber, wood, furniture, and fixtures	7,322	7,279	12,723	6,597	6,724	11,738	725	555	985	10	8	8
Paper and allied products	12,034	13,454	36,414	9,708	11,842	29,197	2,325	1,612	7,217	19	12	20
Printing and publishing	5,916	10,732	22,271	5,260	9,812	20,184	656	920	2,087	11	9	9
Rubber products	9,902	11,488	9,838	7,328	8,367	6,127	2,574	3,121	3,711	26	27	38
Miscellaneous plastics products	1,576	1,249	6,119	1,285	1,090	4,396	292	159	1,723	19	13	28
Glass products	2,792	4,631	5,649	2,191	3,896	4,793	601	735	856	22	16	15
Stone, clay, and other nonmetallic mineral products	4,872	6,187	6,692	3,806	5,150	4,991	1,066	1,037	1,701	22	17	25
Instruments and related products	13,940	25,456	46,061	10,656	18,313	36,455	3,284	7,143	9,606	24	28	21
Other	4,240	5,045	4,422	3,717	4,351	3,657	523	694	765	12	14	17
Wholesale trade	**6,536**	**17,427**	**28,766**	**5,058**	**13,604**	**22,587**	**1,478**	**3,823**	**6,179**	**23**	**22**	**21**
Durable goods	2,583	10,431	13,668	1,939	7,609	10,520	644	2,822	3,148	25	27	23
Nondurable goods	3,953	6,996	15,098	3,119	5,995	12,067	834	1,001	3,031	21	14	20
Finance (except banking), insurance, and real estate	**29,230**	**31,823**	**62,715**	**22,825**	**22,801**	**50,535**	**6,404**	**9,022**	**12,180**	**22**	**28**	**19**
Finance, except banking	3,012	4,991	16,948	2,488	4,730	15,103	524	261	1,845	17	5	11
Insurance	24,835	23,539	41,233	19,866	17,954	34,948	4,968	5,585	6,285	20	24	15
Real estate	85	135	668	72	120	558	13	15	110	15	11	16
Holding companies	1,108	3,005	2,808	399	–2	–75	709	3,007	2,883	64	100	103
Nonbusiness entities, except Government	190	154	1,057	(1)	(1)	(1)	190	154	1,057	100	100	100
Services	**11,674**	**29,362**	**66,999**	**9,950**	**25,997**	**57,090**	**1,724**	**3,365**	**9,909**	**15**	**11**	**15**
Hotels and other lodging places	n.a.	2,838	6,676	n.a.	2,693	5,780	n.a.	145	896	n.a.	5	13
Business services	n.a.	10,026	24,067	n.a.	8,501	18,756	n.a.	1,525	5,311	n.a.	15	22
Advertising	n.a.	2,627	3,960	n.a.	1,947	2,349	n.a.	680	1,611	n.a.	26	41
Equipment rental (ex. automotive and computers)	n.a.	652	193	n.a.	646	175	n.a.	6	18	n.a.	1	9
Computer and data processing services	n.a.	2,313	6,361	n.a.	2,135	5,353	n.a.	178	1,008	n.a.	8	16
Business services, nec	n.a.	4,434	13,551	n.a.	3,773	10,878	n.a.	661	2,673	n.a.	15	20
Automotive rental and leasing	n.a.	(2)	4,998	n.a.	(2)	4,212	n.a.	(2)	786	n.a.	n.a.	16
Motion pictures, including television tape and film	n.a.	941	3,465	n.a.	825	2,663	n.a.	116	802	n.a.	12	23
Health services	n.a.	5,420	8,965	n.a.	5,234	8,559	n.a.	186	406	n.a.	3	5
Engineering, architectural, and surveying services	n.a.	3,350	3,498	n.a.	2,422	2,998	n.a.	928	500	n.a.	28	14
Management and public relations services	n.a.	(2)	1,702	n.a.	(2)	1,180	n.a.	(2)	522	n.a.	n.a.	31
Other	n.a.	6,787	13,629	n.a.	6,322	12,943	n.a.	465	686	n.a.	7	5
Other industries	**107,895**	**186,496**	**246,946**	**99,358**	**178,469**	**234,975**	**8,537**	**8,027**	**11,971**	**8**	**4**	**5**
Agriculture, forestry, and fishing	(D)	1,044	366	(D)	803	332	(D)	241	34	(D)	23	9
Mining	2,415	956	2,931	1,974	876	2,551	441	80	380	18	8	13
Metal mining	853	(D)	2,103	680	(D)	1,764	173	48	339	20	(D)	16
Nonmetallic minerals	1,562	(D)	828	1,294	(D)	787	268	32	41	17	(D)	5
Construction	(D)	11,583	8,509	(D)	9,984	7,300	(D)	1,599	1,209	(D)	14	14
Transportation	18,771	27,409	58,371	17,287	25,386	57,216	1,483	2,023	1,155	8	7	2
Communication and public utilities	47,798	99,035	123,381	46,536	97,738	120,224	1,262	1,297	3,157	3	1	3
Retail trade	28,740	46,471	53,387	26,251	43,683	47,352	2,490	2,788	6,035	9	6	11

(D) Suppressed to avoid disclosure of data of individual companies.
n.a. Not available.
1. No data are shown in this cell because U.S. nonbusiness entities, such as individuals, estates, or trusts, that directly hold foreign investments are not required to report financial and operating data in BEA surveys of U.S. direct investment abroad.
2. Included in "other" services.
MNC Multinational company
MOFA Majority-owned foreign affiliate

Table 12.1.—Gross Product of Nonbank Majority-Owned Foreign Affiliates, Country by Industry, 1977

[Millions of dollars]

	All industries	Petroleum	Manufacturing								Wholesale trade	Finance (except banking), insurance, and real estate	Services	Other industries
			Total	Food and kindred products	Chemicals and allied products	Primary and fabricated metals	Machinery, except electrical	Electric and electronic equipment	Transportation equipment	Other manufacturing				
All countries	161,136	62,010	71,609	5,598	10,075	4,231	13,555	8,062	13,921	16,165	11,301	1,948	3,929	10,339
Canada	27,783	6,110	15,151	1,364	1,623	1,346	1,682	1,276	3,815	4,044	875	910	621	4,114
Europe	69,360	16,944	40,441	2,455	5,412	2,091	9,540	4,935	7,705	8,303	7,628	276	2,102	1,969
Austria	844	(D)	226	25	17	12	(D)	(D)	(D)	70	307	0	27	(D)
Belgium	4,244	543	2,605	88	524	110	341	622	(D)	(D)	726	21	151	198
Denmark	672	(D)	123	26	(D)	(D)	1	46	0	(D)	225	(D)	7	(D)
Finland	247	(D)	(D)	0	(D)	0	0	5	0	(D)	209	0	0	(*)
France	9,688	(D)	6,203	341	812	165	2,122	655	1,045	1,064	961	(D)	416	255
Germany, Federal Republic of	18,115	4,424	12,058	519	1,242	760	3,080	1,262	3,290	1,904	999	78	250	306
Greece	389	235	100	9	37	(D)	0	9	0	(D)	38	5	(D)	(D)
Ireland	762	188	485	62	152	10	76	32	8	146	83	-2	3	5
Italy	5,825	2,430	2,744	199	447	114	909	449	178	447	466	23	82	80
Luxembourg	198	23	175	0	(D)	(D)	32	5	0	(D)	3	-4	0	0
Netherlands	4,209	887	2,235	278	592	267	589	123	(D)	(D)	641	19	266	162
Norway	1,655	1,207	178	0	(D)	(D)	4	(D)	0	27	219	-5	27	28
Portugal	178	(D)	84	11	(D)	5	(D)	(D)	(D)	17	51	(D)	(D)	2
Spain	2,019	8	1,479	115	250	38	117	438	390	130	368	7	49	108
Sweden	1,103	294	518	(D)	49	19	282	(D)	14	87	234	(D)	40	(D)
Switzerland	2,015	321	449	(D)	49	(D)	42	107	0	195	1,025	42	130	48
Turkey	266	(D)	69	2	4	0	0	(D)	(D)	(D)	12	0	43	(D)
United Kingdom	16,861	3,793	10,679	724	1,145	529	1,905	930	2,292	3,155	1,046	18	586	739
Other	70	7	(D)	0	0	(*)	0	(D)	0	(D)	14	(D)	9	(D)
Latin America and Other Western Hemisphere	16,036	3,072	9,533	1,156	1,981	587	889	920	1,506	2,494	1,195	348	461	1,426
South America	10,927	1,668	7,534	788	1,518	462	809	676	1,245	2,036	755	45	309	616
Argentina	1,449	306	945	73	213	35	145	46	179	254	143	3	21	32
Brazil	6,485	736	5,169	450	1,003	231	657	535	901	1,392	220	26	88	246
Chile	162	(D)	62	6	21	(D)	0	(D)	(D)	(D)	30	0	4	(D)
Colombia	532	113	320	39	91	(D)	1	18	(D)	(D)	72	6	6	15
Ecuador	307	(D)	35	9	10	4	0	5	0	6	16	0	2	(D)
Peru	404	114	74	14	14	(D)	1	13	(D)	(D)	36	(*)	4	177
Venezuela	1,370	97	745	168	165	36	5	45	115	212	228	10	185	105
Other	216	(D)	184	28	1	(D)	0	(D)	(D)	(D)	9	1	(*)	(D)
Central America	2,879	233	1,863	299	433	122	79	242	261	426	313	38	61	371
Costa Rica	115	1	57	16	17	1	0	7	0	16	5	(*)	0	53
Guatemala	156	45	61	15	18	2	0	8	(*)	18	8	2	0	39
Honduras	142	(D)	33	23	2	0	0	0	0	8	3	(*)	0	(D)
Mexico	2,050	21	1,646	232	378	115	79	211	261	369	222	7	39	115
Panama	289	89	26	(D)	9	0	0	0	0	(D)	67	27	21	60
Other	127	(D)	41	(D)	10	3	0	16	0	(D)	8	2	0	(D)
Other Western Hemisphere	2,230	1,170	136	69	30	4	0	2	0	32	127	266	92	439
Bahamas	157	39	6	2	5	0	0	0	0	(*)	41	5	46	21
Barbados	25	(D)	0	0	0	0	0	0	0	0	0	0	3	(D)
Bermuda	398	56	0	0	0	0	0	0	0	0	49	268	23	2
Dominican Republic	226	33	83	(D)	3	4	0	1	0	(D)	4	2	(*)	104
Jamaica	370	(D)	18	5	4	0	0	0	0	8	4	1	1	(D)
Netherlands Antilles	89	(D)	1	1	(*)	0	0	0	0	0	4	-14	15	(D)
Trinidad and Tobago	(D)	(D)	(D)	(D)	(D)	0	0	1	0	(D)	4	1	4	14
United Kingdom Islands, Caribbean	24	0	1	0	0	0	0	0	0	1	20	2	0	1
Other	(D)	27	(D)	1	(D)	0	0	0	0	7	1	(*)	0	(D)
Africa	8,020	(D)	802	(D)	119	95	(D)	85	(D)	(D)	314	(*)	43	(D)
Egypt	344	332	4	0	4	0	0	0	0	0	3	0	5	(*)
Nigeria	1,848	1,736	54	2	24	1	0	(D)	0	(D)	31	2	2	24
South Africa	1,317	(D)	546	(D)	80	39	104	53	(D)	114	208	8	18	(D)
Other	4,511	4,001	198	(D)	11	55	(D)	(D)	2	(D)	72	-10	18	232
Middle East	22,260	21,120	103	(D)	41	0	(D)	23	0	(D)	103	(D)	404	(D)
Israel	225	(D)	84	(D)	22	0	(D)	21	0	(D)	(D)	7	11	1
Saudi Arabia	(D)	(D)	3	0	3	0	0	0	0	0	8	(D)	272	147
United Arab Emirates	1,117	1,072	(*)	0	0	0	(*)	0	0	0	0	(*)	3	42
Other	(D)	(D)	16	1	16	0	-3	2	0	0	(D)	1	118	(D)
Asia and Pacific	16,367	(D)	5,579	(D)	900	112	1,317	823	(D)	1,123	1,186	(D)	298	(D)
Australia	5,578	1,158	2,458	256	381	63	225	167	703	664	378	178	153	1,253
China	2	0	2	0	0	0	0	2	0	0	0	0	0	0
Hong Kong	542	71	199	2	19	(D)	22	117	0	(D)	172	24	40	36
India	210	1	205	1	82	0	25	(D)	0	(D)	3	-1	0	2
Indonesia	4,661	4,394	106	2	17	(*)	0	18	0	69	7	1	1	150
Japan	3,065	(D)	1,468	(D)	228	11	(D)	62	1	97	375	94	83	(D)
Korea, Republic of	79	0	59	10	1	0	(D)	34	0	(D)	(D)	0	5	(D)
Malaysia	333	161	122	(*)	12	(D)	2	80	2	(D)	20	1	3	27
New Zealand	384	(D)	158	(D)	21	0	(D)	8	(D)	38	60	6	2	(D)
Philippines	549	(D)	278	79	70	(D)	0	23	(D)	77	40	(D)	4	(D)
Singapore	400	105	210	(*)	2	20	45	127	(D)	(D)	52	-1	3	30
Taiwan	260	9	224	16	23	0	(D)	147	(D)	(D)	21	(*)	0	5
Thailand	254	(D)	58	8	14	1	0	(D)	0	(D)	40	(D)	5	(D)
Other	50	3	30	3	30	0	0	0	0	-3	(D)	(D)	(*)	(D)
International[1]	1,311	873												438
Addenda:														
Eastern Europe[2]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
European Communities (12)[3]	63,162	14,670	38,969	2,372	5,282	2,021	(D)	(D)	7,676	7,865	5,608	228	1,827	1,861
OPEC[4]	32,948	30,227	963	181	234	41	7	83	115	301	335	(D)	583	(D)

(D) Suppressed to avoid disclosure of data of individual companies.
(*) Less than $500,000.
1. See footnote 2 to table 6.
2. See footnote 3 to table 6.
3. See footnote 4 to table 6.
4. See footnote 5 to table 6.

Table 12.2.—Gross Product of Nonbank Majority-Owned Foreign Affiliates, Country by Industry, 1982

[Millions of dollars]

	All industries	Petroleum	Manufacturing								Wholesale trade	Finance (except banking), insurance, and real estate	Services	Other industries
			Total	Food and kindred products	Chemicals and allied products	Primary and fabricated metals	Machinery, except electrical	Electric and electronic equipment	Transportation equipment	Other manufacturing				
All countries	223,717	85,608	99,756	8,884	16,429	5,402	17,619	9,876	18,055	23,491	19,409	1,180	8,009	9,757
Canada	34,017	10,998	16,413	1,448	2,303	989	2,002	1,680	4,123	3,868	1,796	341	1,094	3,376
Europe	112,577	38,413	54,727	4,267	7,892	2,954	11,956	5,273	9,462	12,922	12,058	701	4,691	1,987
Austria	981	(D)	246	(D)	16	1	(D)	77	–20	122	297	1	81	(D)
Belgium	5,127	932	2,394	98	803	96	389	513	18	477	1,445	–17	(D)	(D)
Denmark	1,334	749	231	71	15	8	2	80	15	40	294	(*)	50	11
Finland	574	(D)	(D)	0	4	0	0	(D)	0	4	317	0	49	6
France	12,196	1,784	7,423	586	1,241	347	2,548	442	584	1,676	1,972	34	787	196
Germany, Federal Republic of	24,756	7,137	15,292	638	1,541	968	3,239	1,641	4,340	2,925	1,333	30	517	448
Greece	497	260	140	10	(D)	5	0	(D)	0	53	68	1	(D)	(D)
Ireland	1,893	404	1,336	128	464	25	247	106	21	345	143	–11	13	7
Italy	8,481	3,183	3,928	312	669	157	1,431	623	145	592	903	23	292	153
Luxembourg	235	40	196	0	(D)	16	12	(D)	0	116	1	–2	0	0
Netherlands	5,392	1,496	2,553	499	467	285	494	111	36	659	808	17	377	141
Norway	4,440	3,732	257	2	21	4	2	(D)	0	(D)	345	4	71	31
Portugal	341	17	191	23	26	13	(D)	44	25	(D)	94	0	40	0
Spain	2,571	88	1,854	193	388	89	336	480	202	165	309	2	242	76
Sweden	1,889	765	626	(D)	52	4	403	(D)	32	(D)	391	6	92	9
Switzerland	3,198	803	721	68	95	53	53	99	0	353	1,284	67	298	25
Turkey	152	74	49	(D)	9	0	0	16	0	(D)	(D)	0	8	(D)
United Kingdom	38,465	16,418	17,254	1,572	1,972	884	2,749	760	4,065	5,251	2,010	552	1,458	774
Other	54	(*)	(D)	0	0	0	0	0	0	(D)	(D)	–4	18	(D)
Latin America and Other Western Hemisphere	27,939	5,974	17,531	2,189	3,907	1,051	1,723	1,129	2,647	4,885	2,199	–159	766	1,629
South America	20,358	3,244	14,093	1,595	2,982	868	1,594	699	2,418	3,937	1,557	32	447	986
Argentina	2,902	664	1,859	210	428	61	262	58	71	768	190	22	66	102
Brazil	11,199	475	9,572	809	1,942	534	1,307	538	2,031	2,410	665	11	144	332
Chile	468	135	122	13	34	22	0	9	7	37	88	(*)	16	107
Colombia	1,361	434	720	124	201	37	1	(D)	(D)	253	102	–1	33	72
Ecuador	516	402	72	18	21	8	0	13	2	10	22	1	7	12
Peru	1,116	707	108	18	37	17	0	9	0	27	86	(*)	(D)	(D)
Venezuela	2,394	300	1,401	319	307	70	20	40	229	418	384	–1	163	147
Other	402	126	238	83	12	120	3	(D)	(D)	15	20	0	(D)	(D)
Central America	4,927	653	3,187	573	788	(D)	129	417	229	(D)	526	–22	128	454
Costa Rica	163	2	68	13	16	2	0	14	0	23	(D)	4	2	(D)
Guatemala	276	139	74	16	32	4	0	6	0	16	13	1	4	45
Honduras	251	(D)	82	(D)	10	0	0	(D)	0	12	4	(*)	2	(D)
Mexico	3,561	(D)	2,879	470	700	166	129	378	229	808	421	–5	84	(D)
Panama	433	197	45	4	27	1	0	0	0	12	64	–22	31	118
Other	244	213	39	(D)	3	(D)	0	(D)	0	(D)	(D)	(*)	5	(D)
Other Western Hemisphere	2,654	2,076	251	21	137	(D)	0	14	0	(D)	115	–168	191	188
Bahamas	209	30	14	3	(D)	0	0	0	0	(D)	(D)	7	86	(D)
Barbados	59	(D)	13	0	0	0	0	9	0	5	0	0	5	(D)
Bermuda	82	67	0	0	0	0	0	0	0	0	(D)	–38	34	(D)
Dominican Republic	122	2	43	4	10	(D)	0	0	2	0	(D)	(D)	3	9	(D)
Jamaica	403	(D)	119	5	95	0	0	0	0	19	10	(D)	10	(D)
Netherlands Antilles	189	(D)	6	(D)	(D)	1	0	0	0	0	(D)	(D)	13	3
Trinidad and Tobago	(D)	(D)	27	(D)	(D)	0	0	0	0	5	(D)	8	7	(D)
United Kingdom Islands, Caribbean	23	2	3	0	0	0	0	3	0	0	15	–19	25	–3
Other	(D)	(D)	25	3	0	0	0	0	0	22	(D)	(D)	3	4
Africa	10,055	7,861	1,345	229	222	137	(D)	77	232	(D)	515	2	147	185
Egypt	1,389	1,316	13	(*)	8	3	0	2	0	0	(D)	1	24	(D)
Nigeria	2,219	2,138	65	0	(D)	4	0	(D)	0	(D)	(D)	0	3	(D)
South Africa	2,330	826	1,011	186	149	71	131	43	227	204	377	–2	83	33
Other	4,117	3,581	255	43	(D)	59	(D)	(D)	5	89	(D)	3	37	(D)
Middle East	8,112	6,548	187	7	49	(D)	(D)	71	0	(D)	243	–2	660	477
Israel	280	5	124	0	33	(D)	(D)	(D)	0	(D)	(D)	1	46	(D)
Saudi Arabia	3,965	(D)	46	5	3	(D)	0	(D)	0	(D)	(D)	–4	536	409
United Arab Emirates	3,060	2,961	(D)	0	(D)	0	0	0	0	0	(D)	0	(D)	(D)
Other	808	(D)	(D)	2	(D)	0	2	0	0	0	(D)	1	(D)	(D)
Asia and Pacific	28,438	13,578	9,553	744	2,056	239	1,801	1,646	1,589	1,478	2,598	297	651	1,761
Australia	10,069	3,351	4,295	418	1,053	(D)	362	195	1,209	(D)	844	62	349	1,168
China	7	3	4	0	(*)	0	0	4	0	0	0	0	0	0
Hong Kong	959	95	246	(D)	26	7	27	140	0	(D)	342	75	71	129
India	229	(D)	209	0	66	0	25	(D)	0	(D)	0	(*)	(D)	–4
Indonesia	6,317	5,998	146	7	46	15	(*)	33	0	45	35	4	7	128
Japan	4,587	(D)	2,178	140	497	41	(D)	216	1	(D)	777	97	93	(D)
Korea, Republic of	219	(*)	119	(D)	7	0	0	78	0	(D)	(D)	1	(D)	(D)
Malaysia	1,691	(D)	373	(D)	21	(D)	(D)	283	0	42	62	4	(D)	(D)
New Zealand	618	207	281	27	43	(D)	2	15	(D)	(D)	104	2	7	18
Philippines	1,074	418	447	72	155	(D)	1	81	(D)	(D)	51	(D)	27	(D)
Singapore	1,109	309	570	2	15	3	215	221	108	5	183	5	23	18
Taiwan	616	(D)	514	29	35	(D)	(D)	287	(D)	36	(D)	(D)	3	(D)
Thailand	657	446	96	11	32	1	(D)	37	0	(D)	(D)	(*)	12	(D)
Other	288	135	76	(D)	59	0	0	(D)	0	0	19	(*)	22	36
International[1]	2,579	2,237												342
Addenda:														
Eastern Europe[2]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
European Communities (12)[3]	101,289	32,507	52,791	4,130	7,695	2,892	(D)	4,817	9,450	(D)	9,380	627	4,073	1,910
OPEC[4]	21,801	17,988	1,737	349	414	127	21	101	(D)	(D)	592	(*)	787	697

(D) Suppressed to avoid disclosure of data of individual companies.
(*) Less than $500,000.
1. See footnote 2 to table 6.
2. See footnote 3 to table 6.
3. See footnote 4 to table 6.
4. See footnote 5 to table 6.

Table 12.3.—Gross Product of Nonbank Majority-Owned Foreign Affiliates, Country by Industry, 1989

[Millions of dollars]

	All industries	Petroleum	Manufacturing								Wholesale trade	Finance (except banking), insurance, and real estate	Services	Other industries
			Total	Food and kindred products	Chemicals and allied products	Primary and fabricated metals	Machinery, except electrical	Electric and electronic equipment	Transportation equipment	Other manufacturing				
All countries	319,994	77,195	172,008	13,643	32,059	7,623	30,430	12,646	33,764	41,843	37,947	3,439	14,612	14,793
Canada	52,114	9,509	28,885	1,759	4,298	1,902	2,676	1,921	8,662	7,667	3,291	1,165	1,998	7,266
Europe	179,758	41,596	99,389	6,738	19,241	3,619	19,923	5,853	18,417	25,597	24,463	1,137	9,969	3,204
Austria	2,021	582	695	73	53	6	24	82	(D)	(D)	659	3	58	24
Belgium	8,540	1,368	4,956	263	1,828	152	614	224	(D)	(D)	1,521	35	567	93
Denmark	1,243	128	363	163	51	20	–1	61	7	62	605	18	114	14
Finland	1,065	396	68	3	18	4	8	5	0	31	576	–1	21	5
France	22,625	(D)	11,794	745	2,776	384	3,519	577	639	3,155	4,008	160	1,871	(D)
Germany, Federal Republic of	35,683	5,116	25,804	916	3,271	1,312	5,054	1,442	7,056	6,753	2,473	–38	1,318	1,010
Greece	677	317	201	42	95	0	0	8	0	55	110	(*)	46	3
Ireland	4,473	569	3,502	406	979	77	842	277	41	881	298	18	82	5
Italy	16,487	6,148	7,760	578	1,644	172	2,810	387	809	1,361	1,881	64	422	211
Luxembourg	587	64	515	0	80	(D)	8	3	4	(D)	0	–7	12	4
Netherlands	13,214	(D)	7,761	687	3,661	369	892	545	74	1,533	2,421	–171	1,180	(D)
Norway	4,164	3,497	120	1	34	4	15	2	0	63	436	23	(D)	(D)
Portugal	997	258	342	94	98	(D)	6	76	(D)	(D)	308	(*)	89	0
Spain	7,398	106	5,723	520	1,007	155	870	250	2,092	828	1,120	–3	316	136
Sweden	2,229	(D)	1,008	58	67	17	649	23	8	186	(D)	15	77	(D)
Switzerland	5,106	768	1,215	106	100	35	140	132	12	690	2,407	273	423	19
Turkey	463	203	137	22	34	–7	0	9	(D)	(D)	76	(*)	(D)	(D)
United Kingdom	52,703	15,514	27,423	2,061	3,444	885	4,473	1,748	6,468	8,344	4,703	749	3,264	1,050
Other	83	(D)	1	0	0	0	0	2	0	–1	(D)	–2	15	1
Latin America and Other Western Hemisphere	29,601	3,561	21,664	2,540	4,009	1,411	1,854	1,588	4,740	5,522	2,553	–208	687	1,344
South America	21,843	2,332	16,886	1,682	3,036	1,228	1,638	1,104	3,618	4,581	1,737	87	340	460
Argentina	1,577	454	973	162	249	(*)	(D)	10	14	(D)	75	4	37	35
Brazil	16,618	849	14,167	1,158	2,352	974	1,413	1,062	3,382	3,826	1,273	62	236	30
Chile	681	135	364	10	56	193	(D)	5	56	(D)	101	19	14	48
Colombia	1,150	489	650	112	188	25	0	19	(D)	(D)	101	4	21	–115
Ecuador	272	219	37	17	5	11	0	2	0	2	11	(*)	0	5
Peru	397	(D)	90	5	43	6	0	3	0	33	21	0	5	(D)
Venezuela	736	64	509	152	138	19	14	3	(D)	(D)	129	–2	22	13
Other	412	(D)	95	65	4	2	0	0	0	23	27	0	4	(D)
Central America	6,208	422	4,606	842	897	(D)	216	476	1,121	(D)	498	54	132	496
Costa Rica	208	1	99	28	30	(D)	0	8	0	(D)	10	0	3	94
Guatemala	158	52	69	15	11	0	0	0	0	43	15	–3	2	25
Honduras	287	69	105	90	(*)	2	0	0	0	13	11	(D)	(*)	(D)
Mexico	4,883	30	4,123	588	800	139	216	467	1,121	792	388	68	105	169
Panama	530	164	182	124	49	1	0	0	0	7	72	(D)	19	(D)
Other	143	105	29	–1	7	7	0	1	0	15	2	(D)	3	(D)
Other Western Hemisphere	1,549	807	172	17	76	(D)	0	8	0	(D)	318	–349	215	387
Bahamas	425	61	8	0	8	0	0	0	0	0	62	178	84	33
Barbados	203	67	3	1	0	0	0	(*)	0	2	101	23	10	0
Bermuda	–113	49	1	0	(*)	0	0	0	0	1	54	–231	12	2
Dominican Republic	209	11	31	2	12	0	0	2	0	14	10	(*)	(D)	(D)
Jamaica	455	58	85	0	41	(D)	0	0	0	(D)	53	(*)	(D)	(D)
Netherlands Antilles	–244	–16	7	3	4	0	0	0	0	0	4	–244	3	2
Trinidad and Tobago	497	467	16	5	9	0	0	0	0	2	0	5	7	1
United Kingdom Islands, Caribbean	–10	12	10	0	1	0	0	6	0	3	24	–80	21	3
Other	128	98	12	6	0	0	0	0	0	5	10	(*)	1	7
Africa	5,299	(D)	883	191	228	175	127	17	19	127	117	–15	43	(D)
Egypt	769	689	24	5	10	4	(D)	(D)	0	0	30	2	(D)	(D)
Nigeria	1,733	1,701	18	(*)	15	2	0	1	0	0	12	(*)	1	0
South Africa	701	(D)	441	24	160	58	(D)	(D)	19	69	55	0	11	(D)
Other	2,097	1,294	400	161	42	111	16	11	0	58	20	–17	(D)	(D)
Middle East	4,891	(D)	195	8	23	0	8	119	0	37	163	–64	226	(D)
Israel	359	(*)	191	6	22	0	8	119	0	36	82	–16	102	0
Saudi Arabia	2,735	(D)	6	1	4	0	0	0	0	1	31	–29	103	(D)
United Arab Emirates	1,176	1,156	(*)	0	(*)	0	0	0	0	0	27	–24	13	4
Other	621	(D)	–3	(*)	–3	0	0	0	0	0	23	5	9	(D)
Asia and Pacific	46,875	13,734	20,992	2,407	4,259	516	5,841	3,148	1,927	2,893	7,359	1,424	1,690	1,675
Australia	13,902	3,691	6,861	1,500	1,903	250	511	281	1,245	1,171	1,927	203	610	611
China	8	–28	36	10	9	–1	9	7	0	2	–6	0	5	(*)
Hong Kong	2,926	240	751	5	24	55	170	261	11	225	910	302	255	468
India	157	–9	161	0	(D)	0	(D)	(*)	0	(D)	3	1	1	(*)
Indonesia	3,999	3,591	100	(D)	59	2	7	(D)	0	(D)	42	–1	14	254
Japan	14,940	(D)	7,668	464	1,412	111	3,954	863	47	818	3,249	613	602	(D)
Korea, Republic of	726	–6	463	56	75	3	11	195	5	119	234	(D)	17	(D)
Malaysia	1,749	(D)	477	4	41	(D)	12	313	0	(D)	80	35	5	(D)
New Zealand	985	(D)	302	58	45	3	8	10	(D)	(D)	173	11	25	(D)
Philippines	1,006	(D)	625	183	219	0	3	124	0	96	69	(D)	18	78
Singapore	2,353	463	1,453	22	89	20	656	588	34	44	293	51	79	13
Taiwan	1,938	4	1,531	76	167	16	224	455	(D)	(D)	239	(D)	34	(D)
Thailand	1,815	1,132	476	14	98	45	(D)	46	0	(D)	(D)	56	17	(D)
Other	372	215	88	(D)	(D)	(D)	6	(D)	0	1	(D)	(D)	5	(D)
International[1]	1,457	692												765
Addenda:														
Eastern Europe[2]	4	0	–1	0	0	0	0	0	0	–1	(*)	0	5	0
European Communities (12)[3]	164,628	35,877	96,145	6,474	18,935	3,560	19,087	5,599	18,014	24,475	19,447	825	9,232	3,052
OPEC[4]	10,730	9,372	672	177	223	34	20	6	(D)	(D)	260	–55	162	320

(D) Suppressed to avoid disclosure of data of individual companies.
(*) Less than $500,000.
1. See footnote 2 to table 6.
2. See footnote 3 to table 6.
3. See footnote 4 to table 6.
4. See footnote 5 to table 6.

Table 12.4.—Gross Product of Nonbank Majority-Owned Foreign Affiliates, Country by Industry, 1990

[Millions of dollars]

	All industries	Petroleum	Manufacturing								Wholesale trade	Finance (except banking), insurance, and real estate	Services	Other industries
			Total	Food and kindred products	Chemicals and allied products	Primary and fabricated metals	Machinery, except electrical	Electric and electronic equipment	Transportation equipment	Other manufacturing				
All countries	**356,033**	**86,987**	**187,573**	**16,348**	**32,572**	**7,665**	**33,433**	**13,382**	**37,078**	**47,096**	**40,233**	**5,637**	**17,090**	**18,513**
Canada	**50,820**	**9,003**	**27,391**	**2,005**	**3,375**	**1,407**	**2,505**	**1,833**	**8,595**	**7,672**	**3,444**	**1,752**	**2,051**	**7,179**
Europe	**213,419**	**48,665**	**116,180**	**8,926**	**20,606**	**4,372**	**22,779**	**6,539**	**22,780**	**30,179**	**27,436**	**2,205**	**12,148**	**6,785**
Austria	2,380	(D)	733	88	48	15	33	125	(D)	(D)	694	24	104	(D)
Belgium	10,081	1,445	5,485	285	1,824	194	670	278	(D)	(D)	2,101	262	728	60
Denmark	1,476	153	429	188	52	(D)	–1	(D)	(D)	73	733	28	123	8
Finland	1,203	(D)	(D)	3	25	6	14	5	0	(D)	583	1	24	(D)
France	27,410	5,418	13,993	1,012	3,465	500	4,041	972	599	3,403	4,593	183	2,489	734
Germany [1]	46,969	6,795	33,620	1,421	3,735	1,454	6,293	1,855	10,460	8,402	3,084	313	1,591	1,565
Greece	925	530	188	36	89	0	0	7	0	56	129	26	49	3
Ireland	5,416	672	4,270	430	1,281	89	1,220	284	48	919	393	–16	90	7
Italy	18,967	6,250	9,227	741	2,193	190	3,212	637	780	1,473	2,271	169	548	503
Luxembourg	730	79	632	0	70	(D)	20	(D)	(D)	(D)	0	–1	15	5
Netherlands	13,724	2,392	6,931	833	2,496	482	908	563	62	1,586	2,748	–31	1,496	188
Norway	5,120	4,314	177	2	31	5	48	13	0	79	518	–1	89	23
Portugal	1,269	357	420	113	128	3	12	(D)	(D)	(D)	381	8	102	0
Spain	8,428	146	6,353	586	1,031	183	923	271	2,509	851	1,215	55	422	237
Sweden	2,128	(D)	1,049	75	97	11	541	(D)	(D)	(D)	810	29	90	(D)
Switzerland	6,072	984	1,728	(D)	119	50	101	103	18	(D)	2,825	28	462	44
Turkey	812	422	185	(D)	38	(D)	0	(D)	(D)	(D)	115	(*)	92	(*)
United Kingdom	60,123	17,322	30,545	2,627	3,886	1,125	4,741	1,042	6,876	10,248	4,205	1,143	3,616	3,291
Other	188	(D)	(D)	0	0	(D)	0	(D)	0	–3	38	–15	17	1
Latin America and Other Western Hemisphere	**31,080**	**5,999**	**21,621**	**3,043**	**4,179**	**1,249**	**1,774**	**1,368**	**4,135**	**5,873**	**1,883**	**–671**	**754**	**1,494**
South America	22,782	4,603	15,934	2,046	3,153	1,063	1,546	781	2,565	4,780	923	189	385	747
Argentina	2,603	765	1,397	445	287	15	18	20	17	595	356	(D)	28	(D)
Brazil	16,093	2,602	12,938	1,258	2,423	794	1,508	719	2,399	3,837	83	(D)	281	(D)
Chile	801	(D)	359	16	100	190	3	8	0	42	127	(D)	16	77
Colombia	1,399	581	588	121	201	27	0	18	(D)	(D)	111	2	21	96
Ecuador	341	286	40	15	6	11	0	2	0	6	11	(D)	0	(D)
Peru	412	(D)	60	7	16	4	0	3	0	31	67	(D)	5	(D)
Venezuela	694	76	439	109	116	20	17	11	(D)	(D)	148	–5	28	8
Other	438	(D)	113	75	4	4	0	0	0	30	20	1	5	(D)
Central America	6,947	340	5,458	980	920	(D)	220	579	1,570	(D)	577	–1	157	414
Costa Rica	176	1	105	27	29	(D)	0	8	0	(D)	17	0	4	49
Guatemala	110	27	66	10	13	0	0	0	0	42	15	–4	2	5
Honduras	213	59	80	74	(*)	2	0	0	0	3	7	(*)	–1	67
Mexico	5,800	38	4,984	739	817	120	220	569	1,570	948	450	32	118	177
Panama	522	130	193	130	54	2	0	0	0	8	85	(D)	31	(D)
Other	126	86	30	–1	7	7	0	1	0	16	3	(D)	3	(D)
Other Western Hemisphere	1,351	1,055	228	17	105	(D)	7	8	0	(D)	383	–860	212	332
Bahamas	286	39	8	(*)	8	0	0	0	0	0	43	41	120	35
Barbados	193	63	2	(*)	0	0	0	(*)	0	1	105	(*)	24	0
Bermuda	–210	17	1	0	(*)	0	0	0	0	1	134	–383	30	–10
Dominican Republic	263	19	35	2	16	0	0	2	0	15	11	(*)	(D)	(D)
Jamaica	338	50	133	0	69	(D)	0	0	0	(D)	57	3	(D)	(D)
Netherlands Antilles	–506	4	8	3	4	0	0	0	0	0	9	–544	17	1
Trinidad and Tobago	775	735	13	5	7	0	0	0	0	2	0	19	8	(*)
United Kingdom Islands, Caribbean	74	17	9	0	1	0	0	6	0	2	21	3	9	15
Other	136	111	19	7	0	0	7	0	0	5	4	1	2	0
Africa	**6,162**	**4,659**	**868**	**199**	**240**	**131**	**109**	**21**	**18**	**150**	**144**	**21**	**67**	**403**
Egypt	1,016	927	24	5	10	4	(D)	(D)	0	0	36	2	20	7
Nigeria	2,222	2,186	22	4	12	2	0	1	0	4	12	1	1	0
South Africa	698	(D)	423	19	150	65	92	1	18	78	75	0	14	(D)
Other	2,226	(D)	399	171	68	60	(D)	(D)	0	69	21	19	33	(D)
Middle East	**3,206**	**2,428**	**350**	**9**	**30**	**1**	**6**	**255**	**0**	**48**	**79**	**–4**	**291**	**62**
Israel	577	(*)	341	8	25	0	6	255	0	47	20	7	210	0
Saudi Arabia	123	(D)	7	1	4	1	0	0	0	1	23	–26	69	(D)
United Arab Emirates	1,644	1,606	(*)	0	(*)	0	0	0	0	0	23	5	4	5
Other	862	(D)	1	(*)	(*)	0	0	0	0	0	14	10	8	(D)
Asia and Pacific	**49,786**	**15,560**	**21,163**	**2,165**	**4,143**	**504**	**6,261**	**3,366**	**1,550**	**3,173**	**7,246**	**2,334**	**1,778**	**1,704**
Australia	14,178	4,445	6,321	1,302	1,872	217	496	247	885	1,301	1,713	359	634	706
China	114	–50	41	11	11	–2	(D)	(D)	0	2	(D)	0	7	(D)
Hong Kong	3,122	294	856	6	48	(D)	233	220	4	(D)	933	417	266	354
India	136	–9	141	0	35	0	(D)	(*)	0	(D)	3	(*)	1	(*)
Indonesia	4,987	4,529	111	8	58	2	7	(D)	0	(D)	42	(D)	16	(D)
Japan	14,565	(D)	7,305	497	1,311	117	(D)	(D)	43	(D)	2,845	992	544	(D)
Korea, Republic of	906	–6	486	70	72	3	12	185	13	132	349	23	44	11
Malaysia	1,825	1,006	612	7	35	9	15	424	0	123	119	72	5	11
New Zealand	914	(D)	243	8	54	3	(D)	9	(D)	(D)	171	30	42	(D)
Philippines	1,015	(D)	571	137	211	(D)	3	103	0	(D)	53	(D)	–7	(D)
Singapore	3,547	652	2,372	18	98	19	1,340	808	34	54	242	101	162	18
Taiwan	2,255	5	1,526	77	171	19	202	457	(D)	(D)	489	(D)	45	(D)
Thailand	1,832	1,045	496	16	107	(D)	(D)	75	0	(D)	161	(D)	18	(D)
Other	389	253	82	9	60	1	7	5	0	0	(D)	(D)	0	(D)
Internatfonal [2]	**1,559**	**673**												**886**
Addenda:														
Eastern Europe [3]	(D)	0	(D)	0	0	0	0	(D)	0	1	3	(D)	5	0
European Communities (12) [4]	195,516	41,560	112,094	8,272	20,248	4,279	22,040	6,101	22,399	28,755	21,852	2,139	11,271	6,600
OPEC [5]	10,158	8,820	621	137	198	37	24	12	42	172	263	–25	132	347

(D) Suppressed to avoid disclosure of data of individual companies.

(*) Less than $500,000.

1. Beginning with 1990, includes the former German Democratic Republic (GDR), which reunited with the Federal Republic of Germany in October 1990. This change does not affect the comparability of the 1990 data with the data for earlier years, because no affiliates of U.S. companies were in the former GDR before 1990.

2. See footnote 2 to table 6.

3. See footnote 3 to table 6.

4. See footnote 4 to table 6.

5. See footnote 5 to table 6.

Table 12.5.—Gross Product of Nonbank Majority-Owned Foreign Affiliates, Country by Industry, 1991

[Millions of dollars]

	All industries	Petroleum	Manufacturing								Wholesale trade	Finance (except banking), insurance, and real estate	Services	Other industries
			Total	Food and kindred products	Chemicals and allied products	Primary and fabricated metals	Machinery, except electrical	Electric and electronic equipment	Transportation equipment	Other manufacturing				
All countries	356,069	88,835	182,085	17,922	32,690	7,113	29,923	13,389	33,944	47,104	41,060	4,739	18,097	21,253
Canada	47,126	7,725	23,753	2,075	3,303	1,447	2,140	1,709	6,923	6,155	3,633	2,370	2,155	7,491
Europe	217,515	53,114	115,359	10,171	21,094	4,043	20,571	6,496	21,406	31,579	27,663	981	12,953	7,445
Austria	2,365	(D)	759	90	47	13	38	161	(D)	(D)	594	38	103	(D)
Belgium	9,831	1,607	5,411	332	1,983	225	436	257	(D)	(D)	1,749	218	764	84
Denmark	1,894	532	476	204	77	(D)	(D)	(D)	(D)	90	709	27	130	20
Finland	1,125	(D)	101	4	30	6	18	5	0	37	(D)	2	25	(D)
France	27,306	5,556	13,768	1,163	3,528	498	3,582	972	627	3,399	4,501	153	2,468	859
Germany [1]	49,524	7,512	34,850	1,695	3,862	1,240	6,479	1,691	10,409	9,473	3,471	121	1,811	1,758
Greece	1,169	705	230	56	111	0	0	10	0	52	154	30	49	0
Ireland	5,318	660	4,224	431	1,494	93	779	283	45	1,098	290	46	80	17
Italy	20,308	7,077	9,286	934	2,249	167	3,158	635	701	1,444	2,506	135	661	643
Luxembourg	672	90	551	0	38	(D)	25	(D)	(D)	(D)	2	10	16	3
Netherlands	13,444	2,608	6,708	929	2,247	410	785	476	73	1,789	2,963	–481	1,407	240
Norway	4,939	4,290	127	2	22	5	28	15	0	56	411	3	91	18
Portugal	1,507	461	465	148	175	4	(D)	(D)	(D)	(D)	443	11	127	0
Spain	8,308	149	6,190	609	1,075	162	821	331	2,417	775	1,230	73	399	267
Sweden	2,432	(D)	1,075	(D)	149	8	516	55	(D)	277	(D)	37	138	(D)
Switzerland	6,756	725	2,217	(D)	127	52	127	99	19	(D)	2,763	456	549	46
Turkey	848	372	303	(D)	(D)	23	0	(D)	(D)	(D)	117	(*)	57	–1
United Kingdom	59,494	19,048	28,432	2,621	3,795	1,080	3,753	1,233	5,636	10,314	4,496	108	4,058	3,353
Other	275	43	184	(D)	(D)	0	0	(D)	0	–2	28	–5	23	1
Latin America and Other Western Hemisphere	28,464	4,681	21,004	3,403	3,977	1,032	1,243	1,214	4,466	5,667	2,102	–1,472	586	1,563
South America	19,188	3,248	13,744	2,108	2,779	842	986	471	2,181	4,376	1,014	74	364	744
Argentina	3,363	921	1,951	609	369	31	7	30	26	879	370	(D)	38	(D)
Brazil	11,514	1,221	9,887	1,080	1,912	558	956	396	1,926	3,058	79	(D)	235	(D)
Chile	926	(D)	325	21	72	172	3	9	0	49	151	(D)	25	169
Colombia	1,278	453	641	133	213	30	0	15	(D)	(D)	99	–2	22	64
Ecuador	327	272	33	13	3	11	0	2	0	4	12	–2	0	13
Peru	340	(D)	63	7	23	4	0	3	0	26	69	(D)	5	(D)
Venezuela	1,080	107	711	150	184	33	19	16	(D)	(D)	213	–6	33	23
Other	360	(D)	133	96	4	4	0	0	0	30	21	6	6	(D)
Central America	9,014	567	7,056	1,276	1,117	(D)	249	735	2,285	(D)	736	44	170	442
Costa Rica	192	–7	135	38	30	7	0	12	0	48	14	0	4	46
Guatemala	238	163	69	13	13	0	0	0	0	42	7	–5	2	3
Honduras	276	84	119	103	7	2	0	0	0	7	3	(D)	–1	(D)
Mexico	7,585	52	6,521	992	1,019	(D)	249	722	2,285	(D)	600	72	143	196
Panama	561	153	182	131	41	2	0	0	0	8	109	(D)	19	(D)
Other	163	122	32	–1	7	7	0	1	0	18	1	(D)	3	(D)
Other Western Hemisphere	262	867	204	19	81	(D)	8	9	0	(D)	352	–1,590	52	376
Bahamas	279	59	9	(*)	8	0	0	0	0	0	42	–9	145	33
Barbados	159	24	2	(*)	0	0	0	(*)	0	1	162	–34	6	0
Bermuda	–727	8	1	0	(*)	0	0	0	0	1	76	–859	20	26
Dominican Republic	270	(D)	39	2	16	0	0	2	0	19	5	1	(D)	(D)
Jamaica	334	(D)	103	0	47	(D)	0	0	0	(D)	62	3	(D)	(D)
Netherlands Antilles	–802	4	8	3	4	0	0	0	0	0	10	–681	–145	2
Trinidad and Tobago	642	605	11	5	4	0	0	0	0	2	0	18	8	0
United Kingdom Islands, Caribbean	9	15	10	0	1	0	0	7	0	2	–8	–30	8	15
Other	97	70	21	8	0	0	8	0	0	5	4	1	2	(*)
Africa	6,074	4,574	888	220	276	88	105	19	21	159	172	37	51	352
Egypt	849	(D)	21	8	3	4	(D)	(D)	0	0	55	2	(D)	(D)
Nigeria	2,239	2,187	38	18	17	2	0	1	0	(*)	(D)	1	(D)	0
South Africa	752	(D)	458	23	181	56	(D)	(D)	21	82	68	0	13	(D)
Other	2,235	(D)	371	172	75	26	10	11	0	76	(D)	35	(D)	(D)
Middle East	2,882	1,882	384	14	20	1	16	292	0	41	83	39	395	100
Israel	632	(*)	359	11	15	0	7	286	0	40	26	11	236	0
Saudi Arabia	254	73	9	2	4	1	0	0	0	1	10	14	135	13
United Arab Emirates	1,475	(D)	15	0	(*)	0	9	5	0	0	27	5	16	(D)
Other	521	(D)	1	(*)	(*)	0	0	0	0	0	20	8	8	(D)
Asia and Pacific	52,208	16,041	20,697	2,039	4,021	501	5,847	3,658	1,127	3,504	7,408	2,783	1,957	3,323
Australia	12,295	4,124	5,311	1,015	1,455	188	496	241	571	1,346	1,032	289	685	854
China	211	23	77	17	46	–2	11	(D)	0	(D)	102	0	8	1
Hong Kong	3,192	380	812	19	71	(D)	191	226	4	(D)	947	484	198	371
India	123	–11	130	0	32	0	(D)	(*)	0	(D)	3	(*)	2	(*)
Indonesia	5,031	4,590	114	7	69	3	4	(D)	0	(D)	46	(D)	17	(D)
Japan	16,517	(D)	7,932	542	1,456	137	3,744	1,035	57	962	3,551	1,325	703	(D)
Korea, Republic of	1,031	–7	593	80	90	4	62	181	12	164	353	38	45	10
Malaysia	2,016	(D)	813	8	45	9	71	528	0	151	131	(D)	6	(D)
New Zealand	2,264	(D)	186	3	62	3	(D)	13	(D)	(D)	106	38	41	(D)
Philippines	1,189	(D)	688	210	256	(D)	3	99	2	(D)	68	(D)	(*)	(D)
Singapore	3,333	789	1,924	18	91	20	977	717	36	65	306	110	185	19
Taiwan	2,395	13	1,572	88	190	23	124	479	(D)	(D)	552	205	48	4
Thailand	2,203	1,373	475	22	110	(D)	(D)	126	0	(D)	180	(D)	19	(D)
Other	408	293	70	11	49	1	3	6	0	0	32	(D)	0	(D)
International [2]	1,798	819												980
Addenda:														
Eastern Europe [3]	122	0	122	(D)	0	0	0	(D)	0	2	–2	–2	5	0
European Communities (12) [4]	198,775	46,005	110,593	9,123	20,633	3,936	19,843	6,033	20,983	30,040	22,516	451	11,968	7,243
OPEC [5]	10,492	8,639	921	190	279	50	33	26	125	218	321	14	207	390

(D) Suppressed to avoid disclosure of data of individual companies.
(*) Less than $500,000.
1. See footnote 1 to table 12.4.
2. See footnote 2 to table 6.
3. See footnote 3 to table 6.
4. See footnote 4 to table 6.
5. See footnote 5 to table 6.

Real Gross Product of U.S. Companies' Majority-Owned Foreign Affiliates in Manufacturing

By Raymond J. Mataloni, Jr.

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IN AN initial attempt to remove valuation effects from its measures of the foreign manufacturing activities of U.S. multinational companies (MNC's), the Bureau of Economic Analysis (BEA) has developed experimental estimates of the real gross product of majority-owned foreign affiliates (MOFA's) in manufacturing for 1982–94.[1] Gross product—a measure of value added—is used as a summary measure of economic activity because it is free of double counting, unlike sales or receipts data, which reflect not only value added within the firm, but also the value of intermediate inputs purchased from outside the firm. BEA has long provided current-dollar estimates of gross product for MOFA's and for their U.S. parent companies, but the usefulness of these estimates for comparisons over time or across countries has been limited by the fact that they do not allow changes in real value added to be distinguished from changes in value arising from movements in prices or exchange rates.[2]

As might be expected, removing the effects of changes in prices and exchange rates produces a gross product series that is generally both slower growing and less volatile than the current-dollar series. In real terms, the gross product of MOFA's in manufacturing grew at an average annual rate of 2.5 percent from 1982 to 1994, a rate similar to the rate of growth in host-country industrial production.[3] Year to year, the changes ranged from −4.4 percent in 1991 to 8.4 percent in 1994 (table 1 and chart 1). In terms of current dollars, the product of MOFA's grew at a 5.9-percent rate, and the year-to-year changes ranged from −4.8 percent in 1983 to 18.8 percent in 1987.

Two procedures were used to prepare the estimates of real gross product—a preferred procedure for 19 major host countries that account for over three-quarters of the total gross product of MOFA's in manufacturing and a cruder procedure for other host countries. The preferred procedure consisted of two steps: Estimates for a

1. A foreign affiliate is a foreign business enterprise in which there is U.S. direct investment; that is, a U.S. person ("U.S. parent") owns or controls, directly or indirectly, 10 percent or more of the voting securities or the equivalent. (In this definition, "person" is broadly defined to include any individual, branch, partnership, associated group, association, estate, trust, corporation or other organization—whether or not organized under the laws of any State—or any government entity.) A MOFA is a foreign affiliate in which the combined ownership of all U.S. parents exceeds 50 percent.

A U.S. parent comprises the domestic (U.S.) operations of a U.S. MNC. Foreign affiliates comprise the foreign operations of a U.S. MNC over which the parent is presumed to have a degree of managerial influence. MOFA's comprise the foreign operations over which the parent(s) has a controlling interest.

2. For the most recent current-dollar estimates of gross product, see "Operations of U.S. Multinational Companies: Preliminary Results From the 1994 Benchmark Survey," SURVEY OF CURRENT BUSINESS 76 (December 1996): 11–37. For information on methodology and for illustrations of the uses of these estimates, see "Gross Product of U.S. Multinational Companies, 1977–91," SURVEY 74 (February 1994): 42–63.

Employment has sometimes been used as an indicator of MNC economic activity because it is not directly affected by prices or exchange rates, but it is an imperfect measure because it measures the usage of a factor of production rather than production itself and because it does not reflect changes in the hours worked per employee or the usage of nonlabor factors of production.

This article benefited significantly from comments by two reviewers from outside BEA—Peter Hooper and Robert E. Lipsey.

3. Industrial production indexes are used for this comparison because estimates of real gross product originating in manufacturing are not available for all countries or for all years.

Table 1.—Indexes of Current-Dollar and Real Gross Product of Majority-Owned Foreign Affiliates in Manufacturing, 1982–94

[1993=100]

	Current-dollar	Real	Percent change from previous year	
			Current-dollar	Real
1982	56.1	80.7	.....	.....
1983	53.4	78.9	−4.8	−2.2
1984	54.9	83.3	2.7	5.5
1985	55.7	85.3	1.5	2.4
1986	65.1	85.7	16.8	.5
1987	77.3	90.2	18.8	5.2
1988	89.8	97.1	16.2	7.7
1989	96.8	104.5	7.7	7.6
1990	105.5	103.5	9.0	−1.0
1991	102.4	98.9	−2.9	−4.4
1992	102.4	96.6	−.1	−2.3
1993	100.0	100.0	−2.3	3.5
1994	111.1	108.4	11.1	8.4
Addendum:				
Average annual rate of growth, 1982–94	.....	.....	5.9	2.5

base year (1993) were first constructed using "purchasing power parity" (PPP) exchange rates rather than the market exchange rates (MER's) that are the basis of the current-dollar estimates; then estimates for other years were constructed by extrapolating the base-year estimates with chain-weighted Fisher quantity indexes similar to those used by BEA to estimate changes in U.S. gross domestic product.

Unlike MER's, the PPP exchange rates used to establish the base-year levels under the preferred procedure approximate the number of foreign currency units required to purchase goods and services—whether or not traded internationally—equivalent to those that can be purchased in the United States with 1 U.S. dollar.[4] MER's, on the other hand, reflect a variety of factors, such as international capital movements and expectations of financial market conditions, that are not directly related to the prices of goods and services. As an example of how MER's may move counter to purchasing power parity, from 1980 to 1985, the U.S. dollar price of German marks fell by nearly 40 percent even though the average rate of inflation, measured in consumer prices, was more than 2 percentage points *higher* in the United States than in Germany.[5] MER-based translation of a given volume of production by MOFA's under these conditions would have shown a dramatic decrease, even though in fact none had occurred.

For other host countries, the data needed for the preferred procedure were unavailable, and real dollar-denominated estimates were derived simply by deflating the current-dollar estimates (which had been translated at MER's) by the implicit price deflator for U.S. gross domestic product originating in nonpetroleum manufacturing industries. The estimates constructed using this procedure, though crude, appear to provide reasonable approximations of the true values of real gross product for the group even if not for each country. (See the section "Methodology" for further discussion of both procedures.)

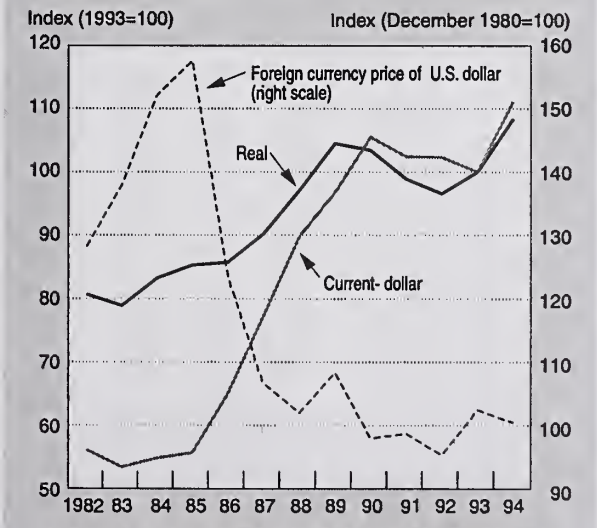
The remainder of the article comprises two parts and an appendix. The first part examines trends in the real gross product estimates and their relationship to the current-dollar estimates. The second part provides a detailed description of the methodology used to prepare the estimates. The appendix provides a brief introduction to PPP exchange rates.

4. PPP exchange rates are not directly observable in the marketplace, but are estimated by international organizations—such as the Organisation for Economic Co-Operation and Development, the United Nations, and the World Bank—by comparing prices for specific goods and services across countries. For additional information on PPP exchange rates see the appendix.

Although more appropriate for this exercise than MER's, the PPP exchange rates used pertain to prices to the consumer rather than to the producer, which can cause some measurement error.

CHART 1

Indexes of Current-Dollar and Real Gross Product of Majority-Owned Foreign Affiliates in Manufacturing and the Foreign-Currency Price of the U.S. Dollar, 1982-94



NOTE—The index of the foreign currency price of the U.S. dollar is a trade-weighted average against the currencies of the following 10 countries: Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, and the United Kingdom.

U.S. Department of Commerce, Bureau of Economic Analysis

Trends in 1982–94

This section examines trends in the real gross product estimates for MOFA's in manufacturing. The trends in the estimates of real gross product are then compared with those in the current-dollar estimates of gross product.

All countries

The real gross product of MOFA's in manufacturing grew at an average annual rate of 2.5 percent in 1982–94—below the 3.1-percent growth rate in real gross product originating in manufacturing industries in the United States but above the about 2-percent growth rate in the real gross product of U.S. parents in manufacturing.[6]

5. As an example of the failure of MER's to track absolute price levels of a particular good or service, the U.S.-dollar prices of a popular fast-food sandwich in various countries have been compared under the prevailing MER's: In 1994, the sandwich cost $2.30 in the United States, $3.77 in Japan, and $1.66 in Hungary. See Michael R. Pakko and Patricia S. Pollard, "For Here or To Go? Purchasing Power Parity and the Big Mac," *Review* (Federal Reserve Bank of St. Louis, January/February 1996): 3–17.

6. For MOFA's, the industry group "manufacturing" excludes petroleum and coal product manufacturing. MOFA's (and U.S. parents) are classified

The patterns of growth in the real gross product of MOFA's in manufacturing differed throughout 1982–94, but these patterns can be roughly divided into three parts: An average annual growth of 3.8 percent from 1982 to 1989, an average annual decline of 2.6 percent from 1989 to 1992, and an average annual growth of 5.9 percent from 1992 to 1994.

Changes in MOFA gross product are the net result of several factors—changes in the capacity utilization of existing MOFA facilities, changes in productive capacity that result from expansion or contraction of existing affiliates, establishment of new affiliates (or "greenfield investments"), acquisitions of existing foreign firms, and sell-offs. Because the direction of the changes in MOFA gross product corresponds with the direction of the changes in economic conditions in several major host-country locations (including Europe, Canada, and Australia), growth in MOFA gross product during 1982–94 probably was mostly accounted for by growth in existing operations, which would be expected to mirror host-country economic conditions. However, greenfield investments and acquisitions also appear to have

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by an enterprise-based system in which all petroleum-related activities (such as oil extraction, refining, and gasoline retailing) are classified in a separate "petroleum" category. For this reason, the estimate of real gross product originating in all U.S. manufacturing industries used in this comparison excludes petroleum and coal products manufacturing. For details on the industrial classification of MOFA's, see "A Guide to BEA Statistics on U.S. Multinational Companies," SURVEY 75 (March 1995): 38–55.

Rough estimates of real gross product for U.S. parents in manufacturing were derived by deflating the current-dollar estimates at the broad industry level shown in table 4 by the implicit price deflators for U.S. gross domestic product originating in those industries.

Table 2.—Current-Dollar and Real Gross Product of Majority-Owned Foreign Affiliates in Manufacturing, by Country, 1982–94

	Billions of current dollars													Average annual rate of growth			
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1982–89	1989–92	1992–94	1982–94
All countries	99.8	94.9	97.5	99.0	115.6	137.4	159.7	172.0	187.6	182.1	181.9	177.7	197.5	8.1	1.9	4.2	5.
19 OECD countries	76.9	75.5	78.3	79.9	95.7	115.0	133.2	141.4	155.0	149.4	143.9	135.7	152.7	9.1	.6	3.0	5.
Australia	4.3	3.8	4.0	3.4	3.1	3.7	5.0	6.9	6.3	5.3	5.1	5.0	5.7	6.9	–9.2	5.8	2.
Austria	.2	.4	.4	.4	.5	.4	.5	.7	.7	.8	.9	.9	1.3	16.0	9.3	18.8	14.
Belgium	2.4	2.7	2.8	2.9	3.8	4.2	4.8	5.0	5.5	5.4	5.9	5.6	6.8	11.0	5.9	7.4	9.
Canada	16.4	18.0	20.2	20.1	20.7	21.9	25.8	28.9	27.4	23.8	21.6	22.0	25.0	8.4	–9.1	7.6	3.
Denmark	.2	.2	.2	.2	.3	.4	.4	.4	.4	.5	.5	.5	.6	6.7	7.9	12.7	8.
Finland	(*)	(*)	(*)	(*)	(*)	(*)	(*)	.1	.1	.1	.1	.1	.3	18.3	24.2	39.2	23.
France	7.4	6.5	6.5	6.6	8.1	10.5	11.0	11.8	14.0	13.8	14.2	14.1	16.3	6.8	6.3	7.0	6.
Germany	15.3	15.3	14.0	14.8	19.5	23.5	25.0	25.8	33.6	34.5	35.6	32.8	32.0	7.8	11.2	–5.1	6.
Greece	.1	.1	.1	.1	.1	.1	.2	.2	.2	.2	.3	.3	.3	5.3	10.5	9.1	7.
Ireland	1.3	1.5	1.8	1.8	1.7	3.0	3.5	3.5	4.3	4.2	4.6	3.9	4.6	14.8	9.1	.3	10.
Italy	3.9	3.8	4.2	4.3	5.7	7.0	7.5	7.8	9.2	9.3	8.9	7.1	8.2	10.2	4.6	–4.0	6.
Japan	2.2	2.5	3.0	3.2	4.5	5.9	7.4	7.7	7.3	8.0	7.9	8.5	10.8	19.7	.9	17.1	14.
Luxembourg	.2	.2	.2	.2	.4	.5	.5	.5	.6	.6	.7	.6	.7	14.8	8.3	3.7	11.
Netherlands	2.6	2.7	2.8	2.8	3.9	5.2	5.9	7.8	6.9	6.7	7.0	6.4	7.5	17.2	–3.4	3.7	9.
New Zealand	.3	.2	.3	.2	.3	.4	.3	.3	.2	.2	.2	.2	.4	1.0	–13.7	37.1	2.
Norway	.3	.2	.2	.2	.1	.1	.1	.1	.2	.1	.1	.2	.3	–10.3	.3	68.6	2.
Spain	1.9	1.8	2.0	2.3	3.3	4.3	5.3	5.7	6.4	6.4	5.8	4.8	5.4	17.5	.3	–3.4	9.
Sweden	.6	.6	.6	.7	.8	.8	.9	1.0	1.0	1.1	.9	.8	.8	7.0	–4.2	–5.0	2.
United Kingdom	17.3	14.9	15.1	15.8	19.1	23.0	29.0	27.4	30.5	28.4	23.7	21.8	25.7	6.8	–4.7	4.3	3.
All other countries	22.8	19.5	19.2	19.0	19.9	22.4	26.5	30.6	32.6	32.7	38.1	42.0	44.8	4.3	7.5	8.5	5.
	Billions of chained (1993) dollars																
All countries	123.6	120.9	127.6	130.7	131.3	138.2	148.8	160.1	158.5	151.5	148.0	153.2	166.1	3.8	–2.6	5.9	2.
19 OECD countries	94.0	96.1	103.8	107.0	107.6	111.5	117.8	126.1	123.2	117.4	109.3	111.2	121.6	4.3	–4.6	5.5	2.
Australia	5.3	4.8	4.9	4.9	4.4	4.6	5.1	6.5	5.8	4.7	4.7	4.9	5.2	2.9	–10.0	4.2	–.
Austria	.3	.4	.4	.5	.4	.3	.4	.6	.5	.5	.6	.6	.9	11.5	1.4	21.6	10.
Belgium	3.2	3.9	4.2	4.3	4.4	4.1	4.5	4.7	4.4	4.4	4.5	4.6	5.3	5.6	–1.6	8.6	4.
Canada	20.2	21.3	24.0	24.3	24.8	24.6	25.8	27.4	25.7	21.8	20.6	21.7	24.8	4.5	–9.0	9.6	1.
Denmark	.2	.2	.2	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	1.7	(*)	15.2	3.
Finland	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	.1	.1	.1	.1	.2	12.4	23.2	47.4	20.
France	8.4	7.8	8.3	8.2	7.8	8.7	8.6	9.5	9.6	9.9	9.7	10.5	11.7	1.7	.7	10.1	2.
Germany	20.1	20.8	20.6	22.0	21.4	21.1	21.7	23.3	25.5	26.3	24.9	24.1	23.0	2.1	2.3	–3.9	1.
Greece	.2	.2	.2	.2	.2	.2	.2	.3	.2	.3	.3	.3	.3	2.3	.9	9.5	3.
Ireland	1.6	2.0	2.4	2.5	1.9	3.0	3.4	3.4	3.7	3.7	3.8	3.6	4.1	11.4	2.9	3.9	8.
Italy	5.2	5.1	5.9	6.2	6.2	6.3	6.5	6.7	6.7	6.8	6.4	6.3	7.0	3.6	–1.5	4.7	2.
Japan	2.4	2.6	3.2	3.4	3.5	4.1	4.6	5.0	4.9	4.9	4.6	4.4	5.2	10.9	–2.3	6.2	6.
Luxembourg	.2	.3	.3	.3	.4	.4	.4	.4	.5	.5	.5	.5	.5	9.8	3.2	6.1	7.
Netherlands	2.9	3.1	3.6	3.6	3.9	4.5	4.8	6.5	5.1	5.1	5.1	5.0	5.7	12.6	–8.1	5.9	5.
New Zealand	.4	.3	.4	.4	.4	.4	.3	.3	.2	.2	.2	.3	.4	–1.9	–12.6	31.1	(*
Norway	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.2	–12.8	–5.1	77.8	.
Spain	2.3	2.6	2.9	3.3	3.7	4.2	4.7	5.0	4.6	4.6	4.0	4.1	4.7	11.5	–6.5	7.3	6.
Sweden	.7	.7	.7	.8	.7	.6	.7	.7	.7	.7	.5	.6	.6	1.2	–9.5	4.2	–1.
United Kingdom	21.6	20.5	22.3	22.6	23.4	24.1	26.4	25.7	24.9	22.4	18.3	19.2	21.6	2.5	–10.6	8.5	(*
All other countries	29.2	24.6	23.6	23.4	23.5	26.5	30.8	33.9	35.3	34.0	38.7	42.0	44.5	2.2	5.5	7.2	3.
Residual	–1.1	–.5	–.9	–.7	(*)	–.1	–.6	–.2	–.2	.3	.1	0	(*)	.....	.....	.....	.....

* Less than $50 million or less than 0.05 percent.

NOTE.—Chained (1993) dollar series were derived by extrapolating the base-year (1993) PPP-exchange-rate-based current-dollar value of the corresponding series by a Fisher quantity index (see the text for details). Because the formula for the Fisher quantity indexes uses weights of more than one period, the corresponding chained-dollar estimates are usually not additive. The residual line is the difference between the total line and the sum of the most detailed lines.

Although the real estimates are denominated in dollars of 1993, the estimate for 1993 does not equal the current-dollar estimate for that year, because the two estimates are based on different exchange rates. As explained in the text, the current-dollar estimates are based on market exchange rates and the real estimates are based on purchasing-power-parity exchange rates.

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contributed significantly to the growth in the gross product of MOFA's in some countries.

19 OECD countries

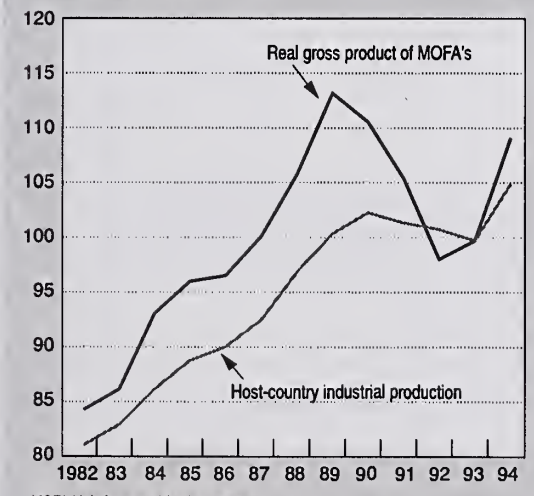
From 1982 to 1994, real gross product of MOFA's in manufacturing in 19 member countries of the Organisation for Economic Co-Operation and Development (OECD) grew at an average annual rate of 2.2 percent—the same as the (weighted) average annual rate of growth in total industrial production in these countries (table 2 and chart 2).[7] Even on a year-to-year basis, the movements in the gross product estimates generally tracked the industrial production in the host countries.

7. For this comparison, a composite index of industrial production was derived by weighting each country's index by that country's share of the cumulative dollar value of real gross product of MOFA's in manufacturing in 1982–94.

The concepts, coverage, and method of computation of industrial production indexes are similar to those of estimates of real gross product of MOFA's in manufacturing. However, the industrial production indexes include the mining, petroleum refining, and electric and gas utilities industries, and some countries' industrial production indexes are based on the changes in the total output (sales plus inventory change) in specific industries rather than on the gross product originating in them. In addition, the industry-level changes are often aggregated with fixed benchmark-year weights rather than with chained weights like those used for the real gross product estimates.

CHART 2

Indexes of Real Gross Product of Majority-Owned Foreign Affiliates in Manufacturing and Host-Country Industrial Production, in 19 OECD Countries, 1982-94



MOFA Majority-owned foreign affiliate
OECD Organisation for Economic Co-Operation and Development

NOTES—The 19 OECD countries covered in this chart are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Spain, Sweden, and the United Kingdom.
The composite index of industrial production was derived by weighting each country's index by the country's share in the cumulative dollar value of real gross product of MOFA's in manufacturing in 1982-94.

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From 1982 to 1989, the estimates of real gross product for MOFA's in the 19 countries grew at an average annual rate of 4.3 percent, compared with a 3.1-percent growth rate for host-country industrial production. The growth in gross product was widespread, reflecting an extended period of economic growth in most of the OECD countries. Greenfield investments and acquisitions may have also contributed to the growth in several host countries—such as Ireland, Japan, the Netherlands, and Spain—where MOFA gross product grew much faster than the worldwide average.

From 1989 to 1992, the estimates of real gross product for MOFA's decreased at an average annual rate of 4.6 percent, compared with a growth rate of 0.1 percent for host-country industrial production. The decrease reflected falling capacity utilization for MOFA's (related to slow growth or recession in host-country economies) that more than offset the modest growth in the productive capacity of MOFA's during this period. Among the larger host countries, Australia, Canada, and the United Kingdom had the largest decreases, perhaps because economic recessions began earlier in those countries than in most other OECD countries.

From 1992 to 1994, the estimates of real gross product for MOFA's increased at an average annual rate of 5.5 percent, compared with a 2.0-percent growth rate for host-country industrial production. The increases in gross product were widespread and mainly reflected renewed economic growth in the host countries.

All other countries

From 1982 to 1994, real gross product of MOFA's in manufacturing in "all other countries" grew at an average annual rate of 3.6 percent. Unlike the growth in the 19 OECD countries, the growth in these countries was slowest from 1982 to 1989, partly reflecting the effects of a debt crisis in Latin America. From 1989 to 1994, growth accelerated, reflecting renewed economic growth in Latin America and new investments by U.S. MNC's in emerging markets worldwide.

Comparison of real and current-dollar estimates

All countries.—The real and current-dollar estimates of gross product present very different pictures of the level and growth of U.S. companies' overseas manufacturing activities in 1982–94. The differences can be explained largely by exchange-rate conditions rather than by changes in prices.

Unlike most real and current-dollar series, the levels of the estimates of real and current-dollar gross product do not match in the base year, 1993, of the real series; the current-dollar estimate is $177.7 billion, whereas the real estimate is $153.2 billion (table 2). The difference results from differences in the exchange rates on which the estimates are based: The current-dollar estimates are based on MER's, and the real estimates are based on PPP exchange rates. The lower level of the real series in 1993 reflects the higher exchange value of the dollar under PPP exchange rates in 1993 than under MER's. Under the prevailing MER, one unit of currency could have purchased more, on average, in the United States than it could have abroad.

During 1982–94, the year-to-year changes in the real estimates differed from those in the current-dollar estimates. Real gross product of MOFA's in manufacturing grew at an average annual rate of 2.5 percent, compared with an average annual growth rate of 5.9 percent for the current-dollar estimates. Most of the divergence occurred in 1985–90 (chart 1). From 1982 to 1985, the two series moved roughly in tandem, probably because changes in the MER value of the dollar were consistent with those needed to maintain purchasing power parity between the dollar and the currencies of the countries where U.S. MNC's were producing; the dollar appreciated at a time when U.S. inflation was generally milder than that of the major host countries (table 3). From 1985 to 1990, the real estimates grew at an average annual rate of 3.9 percent, compared with a 14.0-percent rate for the current-dollar estimates. The difference in the growth rates probably reflects the depreciation of the MER value of the dollar; the dollar depreciated substantially even though U.S. inflation continued to be generally milder than that abroad. From 1990 to 1994, the differences between the two series were smaller, probably reflecting relative stability in the MER value of the dollar.

19 OECD countries.—For most of the 19 OECD countries, the relationship between the current-dollar and the real estimates of gross product was similar to that for all countries. In 1993, the levels of the current-dollar estimates exceeded those of the real estimates in all but two countries (Greece and New Zealand). Like the estimates for all countries, the current-dollar estimates for the 19 countries grew more than twice as fast, on average, as the estimates of real gross product. The differences in the growth rates for the largest OECD host countries were generally most pronounced between 1985 and 1988 (chart 3).

Table 3.—Average Annual Change in Consumer Prices

[Percent]

	1982–85	1985–90	1990–94
United States	4.3	3.9	3.2
OECD Europe	8.9	5.9	7.3
Canada	6.2	4.4	2.3
Japan	2.2	1.5	1.7

Sources: OECD, *Historical Statistics, 1960–1990* (OECD, Paris, 1992) and *Main Economic Indicators* (OECD, Paris, November 1995)
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All other countries.—In contrast to the levels for the 19 OECD countries, the levels of the estimates of current-dollar and real gross product for all other countries are identical in 1993, and in the other years, the differences between the two series simply reflect inflation as measured by the U.S. implicit price deflator for gross domestic product originating in nonpetroleum manufacturing industries. This relationship results from the method used to produce the real gross product estimates for these countries.

Methodology

This section describes the methodology for preparing the estimates of real gross product, which were derived by adjusting the current-dollar estimates.

Current-dollar gross product estimates

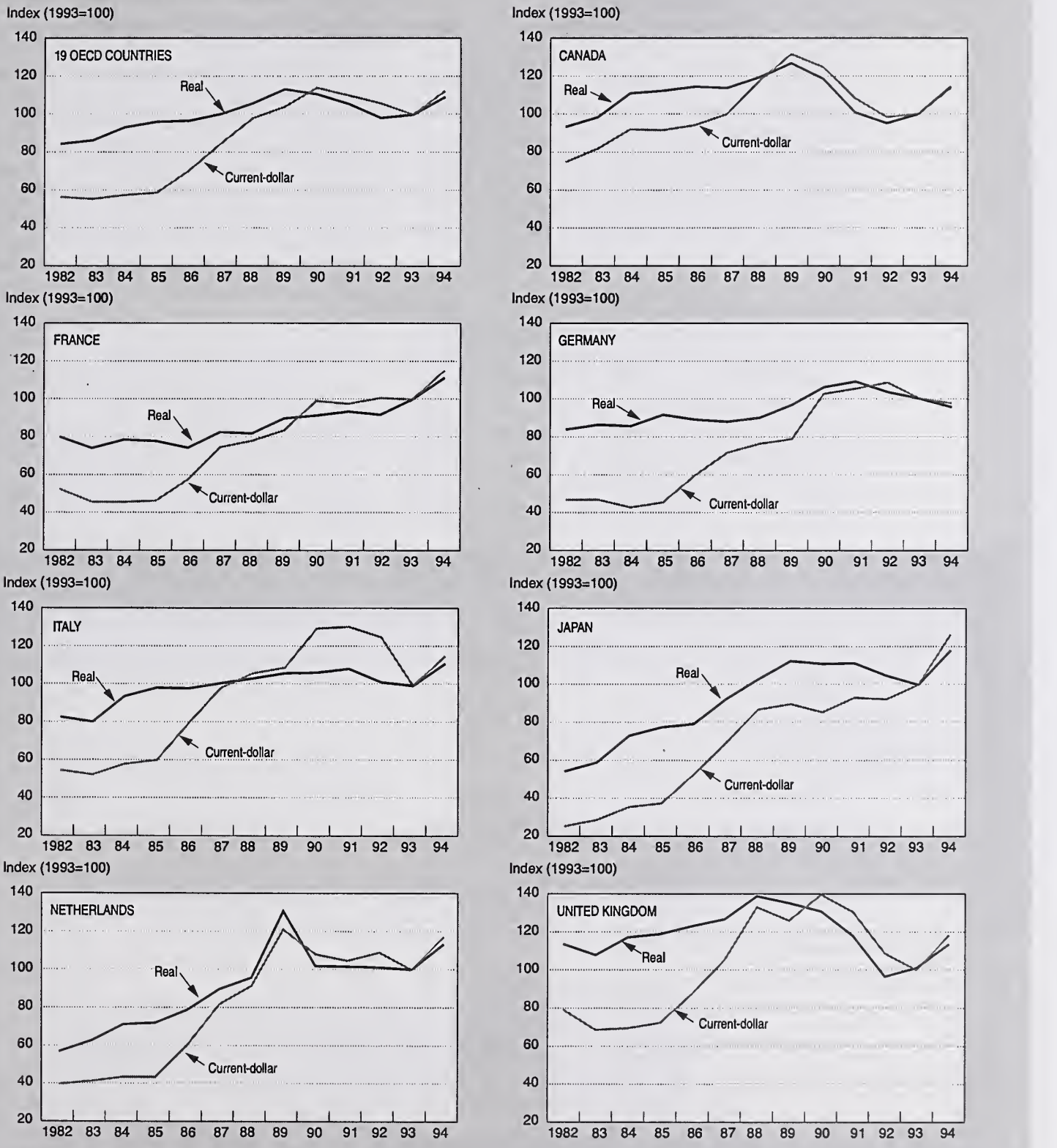
Gross product for a firm, such as a MOFA, can be measured as its gross output (sales or receipts and other operating income, plus inventory change) less its purchased intermediate inputs (purchased goods and services). Alternatively, gross product can be measured as the sum of the costs incurred (other than for intermediate inputs) and the profits earned in production. The current-dollar gross product estimates for MOFA's are prepared by summing costs and profits. The data on costs and profits are collected in BEA's annual and benchmark surveys of U.S. direct investment abroad and are combined with BEA estimates of some items.[8] Survey respondents are asked to follow U.S. generally-accepted accounting principles (GAAP), which require that revenues and costs denominated in foreign currencies be translated to U.S. dollars, using the average MER for the year.[9] Therefore, the gross product estimates that are

8. See "Gross Product of U.S. Multinational Companies, 1977–91."

9. However, in accordance with GAAP, the revenues and expenses of affiliates operating in hyperinflationary economies are translated daily into U.S. dollars at the prevailing daily MER's; thus, the accounts for these affiliates are, in effect, kept in dollars.

CHART 3

Indexes of Current-Dollar and Real Gross Product of Majority-Owned Foreign Affiliates in Manufacturing, by Selected Country, 1982-94



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derived from these data reflect what a U.S. buyer would pay, at the prevailing MER, to purchase the gross product of MOFA's from abroad.

Real gross product estimates

Two procedures were used to prepare the estimates of real gross product. A preferred procedure was used for the estimates for 19 major host countries that account for over three-quarters of the total gross product of MOFA's in manufacturing. A cruder procedure was used for the estimates for other host countries, because the data needed for the preferred procedure were unavailable.

19 OECD countries.—The estimates of real gross product for the 19 OECD countries were prepared in two steps (chart 4). First, estimates for a base year, 1993, were prepared using PPP exchange rates in place of MER's.

Product-specific, rather than economywide, PPP exchange rates were used because they are considered more appropriate for translating gross product for a particular group of industries, such as manufacturing industries.[10] For the 19 OECD countries, PPP exchange rates for specific final consumption and investment expenditure categories were available from the OECD and were used in deriving the base-year estimates of real gross product for MOFA's in these countries.[11]

The estimates for the base year were derived as follows (chart 4, "Base Year"). First, the current-dollar estimates for each of the 19 OECD countries and for 7 major manufacturing industries (table 4, column 1) in each country were translated back into current local currency by using the average MER for the year. Second, the estimates for each industry were retranslated into U.S. dollars by using the most appropriate PPP exchange rate (table 4, column 3). Third, the industry-level estimates for each country were summed to produce the base-year estimates by

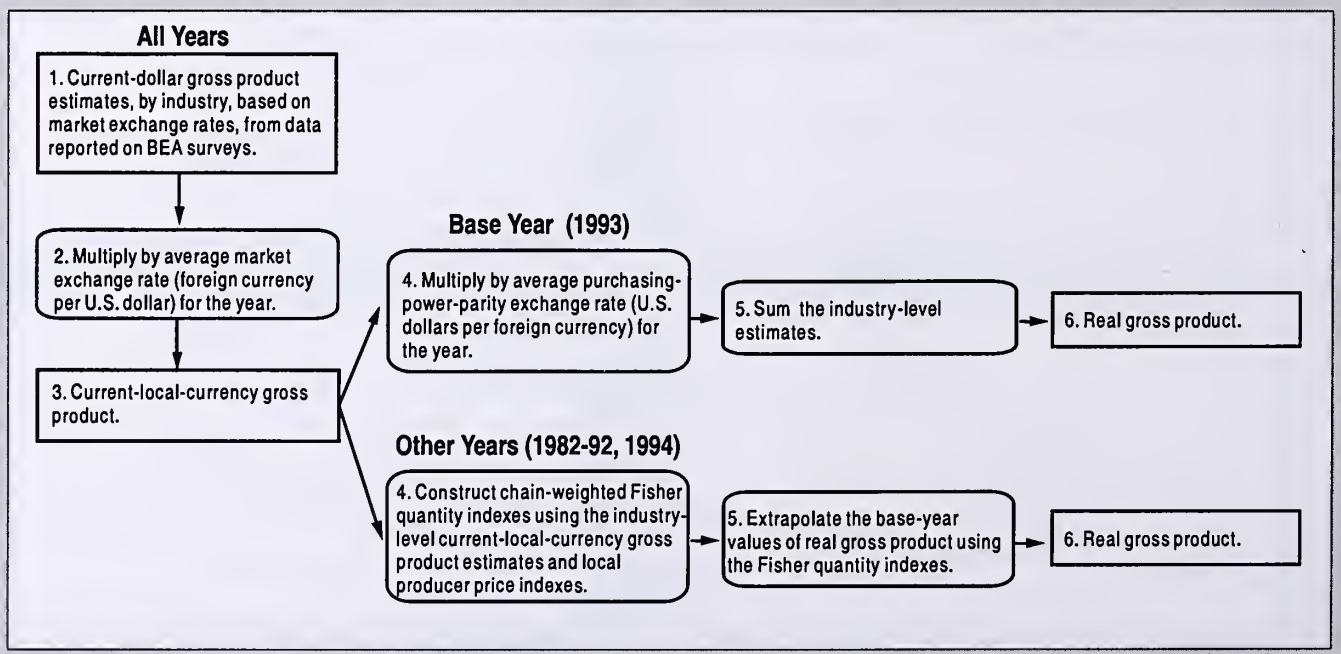
10. See, for example, Peter Hooper, "Comparing Manufacturing Output Levels Among the Major Industrial Countries," in *Industry Productivity: International Comparison and Measurement Issues* (Paris: OECD, 1996).

11. The exchange rates used in this study were published in OECD, *Purchasing Power Parities and Real Expenditures 1993, EKS Results, Volume 1* (Paris: OECD, 1995).

It would have been preferable to use PPP exchange rates that were based on producers' prices rather than on consumers' prices, or that had otherwise been adjusted for differences between expenditure and output prices, but none were readily available. Some analysts, such as Hooper (1996), have attempted to make rough adjustments for some of these factors (such as cross-country differences in distribution margins and indirect taxes).

CHART 4

Derivation of Real Gross Product of Majority-Owned Foreign Affiliates in Manufacturing in 19 OECD Countries



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country. Fourth, the estimates for each country were summed to produce the base-year estimate for all 19 countries.

The second step in producing the real gross product estimates was to extrapolate the base-year estimates to other years (1982–92 and 1994) by using chain-weighted Fisher quantity indexes (chart 4, "Other Years"). The current-dollar estimates at the country and industry level were first translated back into current local currency. The resulting estimates by industry were then used, along with country- and industry-specific producer price indexes (table 4, column 2), to construct a chain-weighted Fisher quantity index for each country.[12]

The following Fisher quantity index (Q) was used to estimate the change in the real gross product for MOFA's in a country between any two adjacent years:[13]

$$Q = \sqrt{\frac{\sum p_{i1}q_{i2}}{\sum p_{i1}q_{i1}} \times \frac{\sum p_{i2}q_{i2}}{\sum p_{i2}q_{i1}}},$$

where the p's are prices in local currency, the q's are quantities, the i's are industries, and 1 and 2 are adjacent years.

Because the variables that represent the composites of prices in one period and the quantities in another (such as $p_{i1}\ q_{i2}$) are not directly observable, the quantity indexes were actually computed using an algebraically equivalent formula consisting of combinations of prices and quantities of the same period (the current-local-currency estimates) and indexes of relative prices in the two periods (the ratios of producer price indexes).[14]

The Fisher quantity indexes were used as the bases for extrapolating the dollar-denominated PPP-based estimates for the base year (1993) to the other years covered (1982–92 and 1994).[15]

The estimate for all 19 countries for each year was derived by extrapolating the base-year estimate using a Fisher quantity index that aggregated across countries as well as across industries.[16]

All other countries.—Real gross product estimates for all other countries were derived using a cruder method because of the limited availability of data. The estimates were prepared on the basis of the assumption that MER's tend to maintain purchasing power parity between these countries' currencies and the U.S. dollar. Therefore, the real gross product estimates were derived by simply deflating the current-dollar gross product estimates with the U.S. implicit price deflator for gross domestic product originating in manufacturing.

The assumption that MER's maintain purchasing power parity between currencies is clearly naive, but certain factors precluded the use of the method followed for the 19 OECD countries. First, some of the most important host countries in this group experienced hyperinflation during much of the period being examined, and the use of the available average annual MER's could not be relied upon to produce estimates that approximated the actual local-currency-denominated values.[17] Sec-

12. The industry-specific producer price indexes are from the OECD *Indicators of Industrial Activities* (Paris, OECD, various quarterly issues).

13. A similar equation is used to measure changes in total U.S. gross domestic product. See, for example, "A Look at How BEA Presents the National Income and Product Accounts," SURVEY 76 (May 1996): 36.

14. The rewritten Fisher quantity index is as follows:

$$Q = \sqrt{\frac{\sum \frac{p_{i1}}{p_{i2}} \cdot p_{i2}q_{i2}}{\sum p_{i1}q_{i1}} \times \frac{\sum p_{i2}q_{i2}}{\sum \frac{p_{i2}}{p_{i1}} \cdot p_{i1}q_{i1}}}$$

15. Ideally, the gross product estimates would have been derived using a double-deflation method (applying separate price deflators to output in current local currency and to purchased inputs in current local currency), but source data were not available to use this method. For this reason and because the gross product of MOFA's is calculated from the "income" components (rather than by subtracting purchased inputs from gross output), the quantity index of real output had to be derived by applying a price deflator directly to the current-price gross product estimates.

16. In contrast to the computation of the index for each country, the current-local-currency estimates (such as $p_{i1}q_{i1}$) for each country had to be translated to a common currency before they could be used in computing the index for the 19 countries combined. The current-local-currency estimates for all years (1982–94) were translated to U.S. dollars using the PPP exchange rates for 1993, yielding dollar-denominated series that reflected host-country price conditions. Though not true PPP-based current-dollar series (because they reflected foreign rather than U.S. price conditions), these dollar-denominated series had to be constructed as an intermediate step in deriving an extrapolator for the base-year aggregate.

17. As noted earlier, the data underlying the estimates for such countries typically would have been translated into dollars by MNC's on a daily basis.

Table 4.—Categories Within the Manufacturing Industry Used for Price Deflation and Currency Translation

Gross product	Producer price index for foreign countries [1]	Purchasing-power-parity exchange rate [2]
Food and kindred products	Food and beverages	Food consumption
Chemicals and allied products	Chemicals	Total gross domestic product
Primary and fabricated metals	Primary and fabricated metals	Total gross domestic product
Industrial machinery and equipment	Nonelectrical machinery	Nonelectrical equipment investment
Electronic and other electric equipment	Electrical machinery	Electrical equipment investment
Transportation equipment	Motor vehicles	Personal transportation equipment consumption
Other manufacturing	Total manufacturing except petroleum	Total gross domestic product

1. See chart 4, "Other Years," item 4.
2. See chart 4, "Base Year," item 4.

ond, although economywide PPP exchange rates were available for many (if not all) of these countries, PPP exchange rates can be very imprecise and difficult to interpret for pairs of countries—such as the United States and many lower income non-OECD countries—for which the patterns of consumption and production differ so sharply as to almost preclude the construction of a common representative market basket of goods and services.[18] Because of these methodological limitations, real gross product estimates were not produced for these countries individually.

Despite the widespread divergences of MER's from PPP exchange rates, there is reason to believe that the cruder methodology provides reasonable estimates at a highly aggregated level. MER's and PPP exchange rates may tend to converge over the long term, particularly for groups of countries (because the overvaluation of some currencies, in a PPP sense, may tend to be offset by the undervaluation of others).[19] In addition, the real gross product estimates for this group of countries tend to track—with, as would be expected, a lead—long-term changes in MOFA employment during 1982–94.

A Fisher quantity index for extrapolating the base-year estimates of all countries combined was derived using the same data and procedure used to create the index for the 19 OECD countries except that the estimates for all other countries combined were included in the computation as an additional observation.

Appendix: Purchasing-Power-Parity Exchange Rates

To compare gross product among countries, a common unit of measure, such as the U.S. dollar, is needed. To translate gross product estimates denominated in foreign currencies into U.S. dollars for international gross product comparisons, PPP exchange rates should be used, because they approximate the number of foreign currency units required in a foreign country to buy goods and services that are equivalent to those that can be bought in the United States with 1 U.S. dollar.[20]

PPP exchange rates are derived by comparing the domestic prices for goods and services in different countries. For example, in a hypothetical one-good, two-country world economy, the PPP exchange rate would equal the ratio of the price of the good in one country to the price in the other country; if the good sold for 10 currency units in country A and 1 currency unit in country B, the PPP exchange rate would be 10 units of country A's currency to 1 unit of country B's currency. However, in practice, the derivation of PPP exchange rates is much more complex because of the multitude of goods and services produced and because of the differences among economies in the relative importance of those goods and services. To deal with these complexities, PPP-exchange-rate formulas have been developed.

PPP-exchange-rate formulas

Simple two-country, or bilateral, comparisons are the most basic context in which to compute PPP exchange rates. The most widely used bilateral index is the Fisher formula, which is based on the Fisher Ideal Price Index.[21] It is the geometric mean of the own-country-weighted and partner-country-weighted averages of prices (expressed in each country's currency) in the two countries for goods and services—traded and untraded alike—that are consumed in both countries.

The Fisher formula (PPP^F) is

$$PPP^F_{A:B} = \sqrt{\frac{\sum p_{Ai}q_{Ai}}{\sum p_{Bi}q_{Ai}} \times \frac{\sum p_{Ai}q_{Bi}}{\sum p_{Bi}q_{Bi}}},$$

where the i's are individual goods and services, the p's are prices, the q's are quantities, and A and B are countries.

For multilateral comparisons, PPP exchange rates must be derived using formulas specifically designed to ensure that the direct comparison of any two currencies is consistent with all indirect comparisons of those currencies via third currencies. When such consistency exists, the exchange rates are said to have the property of "transitivity." For example, to be transitive, the exchange rate for U.S. dollars to German marks must equal

18. These limitations notwithstanding, future refinements to the estimates might include incorporating PPP-exchange-rate data for some of these countries—particularly those whose economies are relatively advanced and are not experiencing hyperinflation.

19. A study by Craig S. Hakkio identifies a tendency for MER's to converge with PPP exchange rates over the long term. See "Is Purchasing Power Parity a Useful Guide to the Dollar?" *Economic Review*, Third Quarter 1992 (Federal Reserve Bank of Kansas City, 1992): 37–51. James R. Lothian and Mark P. Taylor find a similar result in "Real Exchange Rate Behavior: The Recent Float from the Perspective of the Past Two Centuries" *Journal of Political Economy*, 104, no. 3 (1996): 488–509.

20. MER's are, however, more appropriate than PPP exchange rates for some purposes, such as comparing the dollar-denominated production costs of MNC's in various countries.

21. Irving Fisher, *The Making of Index Numbers* (Boston: Houghton Mifflin, 1922).

the product of the exchange rate for U.S. dollars to Japanese yen and the exchange rate for Japanese yen to German marks. The multilateral PPP exchange rates that were used in this study are based on a formula that was simultaneously and independently developed in 1964 by Ödön Éltetö and Pál Köves and by Bohdan Szulc.[22] The formula is often referred to simply as the "EKS method."[23]

Developing PPP exchange rates

The task of producing a multilateral system of PPP exchange rates is formidable: A list of the goods and services that are common to a group of countries must be defined, and the items being compared must be similar in features and quality; price and quantity data for each item in each country must be collected; and the PPP exchange rates must be calculated.

Pioneering work in this area began in the 1950's.[24] In 1968, the first organized effort to produce PPP exchange rates on an ongoing basis was undertaken by the United Nations under the name International Comparison Project (ICP). The first results of the ICP, covering 1970, were published in 1975.[25] The OECD countries, while continuing to participate in the ICP, began their own program to produce PPP exchange rates for member countries in the early 1980's. The PPP exchange rates used in this article were obtained from the OECD study covering 1993.

22. Ö. Éltetö and P. Köves, "On a Problem of Index Number Computation Relating to International Comparisons," *Statisztikai Szemle* 42 (1964): 507–518 (in Hungarian); B. Szulc, "Indices for Multiregional Comparisons," *Przeglad Statystyczny* 3 (1964): 239–254 (in Polish).

English translations of these articles are being published in the January/February 1997 issue of *Eastern European Economics* 35, no. 1.

23. This formula can be found in László Drechsler, "Weighting of Index Numbers in Multilateral International Comparisons," *Review of Income and Wealth* 19, no. 1 (March 1973): 17–34.

24. Milton Gilbert and Irving Kravis, *An International Comparison of National Products and the Purchasing Power of Currencies* (Paris: Organisation for European Economic Co-Operation, 1954).

25. Irving Kravis, Zoltan Kenessey, Alan Heston, and Robert Summers, *A System of International Comparisons of Gross Product and Purchasing Power* (Baltimore: Johns Hopkins University Press, 1975).

For a review and evaluation of the ICP, see Irving B. Kravis and Robert E. Lipsey, "The International Comparison Program: Current Status and Problems," in *International Economic Transactions: Issues in Measurement and Empirical Research*, edited by Peter Hooper and J. David Richardson (Chicago: University of Chicago Press, 1991): 437–64.

The Domestic Orientation of Production and Sales by U.S. Manufacturing Affiliates of Foreign Companies

By William J. Zeile

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SINCE THE surge in foreign direct investment in the United States in the late 1980's, much attention has focused on the role of foreign-owned firms in the U.S. economy, particularly in manufacturing.[1] A question that is frequently posed concerns the degree to which U.S. affiliates of foreign companies are integrated into the U.S. economy through their sourcing behavior and value-added activity. A related question is whether U.S. manufacturing affiliates in comparison with domestically owned firms are more oriented toward producing for the U.S. market or for their home-country and other foreign markets.

Data from the benchmark and annual surveys of foreign direct investment in the United States that are conducted by the Bureau of Economic Analysis (BEA) can be used to gauge the domestic content of output by U.S. affiliates of foreign companies.[2] For affiliates in manufacturing,[3] aggregate estimates presented in two previous articles in the SURVEY OF CURRENT BUSINESS show a high share of domestic content in output; in each of the years examined, about 90 percent of the output of these affiliates was accounted for by the affiliates' own value added and by the value of inputs purchased from suppliers located in the United States.[4] In both articles, imports are estimated to have accounted for less than 20 percent of the intermediate inputs purchased by all manufacturing affiliates. In addition, the second article shows that import shares of affiliate purchases of intermediate inputs in 1991 were generally low across more detailed manufacturing industries; however, in a few industries, the import shares were quite high—more than 30 percent—particularly for Japanese-owned affiliates.

An outstanding question from these results is the degree to which the domestic content for affiliates in manufacturing differs from that for domestically owned manufacturers, both in the aggregate and across detailed industries. A related question is the degree to which any observed differences in domestic content at the aggregate level reflect systematic differences in behavior across industries rather than differences in a few specific industries or differences in the types of industries in which affiliates and domestically owned companies are concentrated.

In this article, measures of domestic content for U.S. manufacturing affiliates in 1989 and 1994 are compared with measures of domestic content for domestically owned U.S. parent companies in manufacturing (which in 1994 accounted for more than one-half of the gross output of all domestically owned U.S. companies in manufacturing); the data are from BEA's 1989 and 1994 benchmark surveys of U.S. direct investment abroad.[5] Domestically owned U.S. parent companies are an appropriate comparison group

1. As an indicator of the increased importance of foreign-owned affiliates in U.S. manufacturing, the share of U.S. manufacturing employment that is accounted for by U.S. affiliates of foreign companies increased steadily from 7.6 percent in 1987 to 11.7 percent in 1994 before dipping to 11.4 percent in 1995. The employment shares for 1990–95 are shown in table 12 of "Foreign Direct Investment in the United States: New Investment in 1996 and Affiliate Operations in 1995," SURVEY OF CURRENT BUSINESS 77 (June 1997): 54.

2. In this article, the term "domestic content" refers to the difference between gross output and direct imports of intermediate inputs. This terminology is used for analytical purposes only and does not constitute an official definition.

3. In BEA's data on direct investment, manufacturing excludes petroleum and coal products manufacturing, which is classified under the major industry "petroleum."

4. See Jeffrey H. Lowe, "Gross Product of U.S. Affiliates of Foreign Companies, 1977–87," SURVEY 70 (June 1990): 45–53; and William J. Zeile, "Merchandise Trade of U.S. Affiliates of Foreign Companies," SURVEY 73 (October 1993): 52–65.

In addition, estimates of domestic content for all nonbank U.S. affiliates were presented as supplementary items in two articles in the SURVEY that featured an alternative disaggregation of the U.S. current account based on ownership. See J. Steven Landefeld, Obie G. Whichard, and Jeffrey H. Lowe, "Alternative Frameworks for U.S. International Transactions," SURVEY 73 (December 1993): 50–61; and Obie G. Whichard and Jeffrey H. Lowe, "An Ownership-Based Disaggregation of the U.S. Current Account, 1982–93," SURVEY 75 (October 1995): 52–61.

5. In addition to the two SURVEY articles cited above, the analysis in this article builds on earlier work by the author that will be presented in William J. Zeile, "Imported Inputs and the Domestic Content of Production by Foreign-Owned Manufacturing Affiliates in the United States," in *Geography and Ownership as Bases for Economic Accounting*, ed. Robert E. Baldwin, Robert E. Lipsey, and J. David Richardson (Chicago: University of Chicago Press, forthcoming in 1998).

because of their similarity with U.S. affiliates in terms of size and international orientation. In addition, the data for U.S. parent companies are highly comparable with those for U.S. affiliates because the data for both are collected at the enterprise level and are based on the same concepts and definitions.[6]

Domestic content is analyzed in terms of three related measures that provide information about the inputs used in production: (1) The domestic content of gross output, (2) the value-added share of gross output, and (3) the import share of intermediate inputs. The first measure is the broadest measure of domestic content: It shows the share of a company's gross output (sales plus inventory change) that is accounted for by wages and salaries, profits, and other incomes earned through its production in the United States and by the value of raw materials, components, and other intermediate inputs that are purchased from U.S. suppliers.

The domestic content of output is determined by two decisions that are captured by the second and third measures: The "make or buy" decision and the "import or procure locally" decision. The "make or buy" decision determines the degree of vertical integration in firm production, which is reflected in the share of output accounted for by the firm's own value added. The "import or procure locally" decision, which determines the firm's linkages to domestic suppliers, is captured by the share of imports in its intermediate inputs.[7]

In addition, the market orientation of affiliate output is analyzed in terms of the export share of sales. This measure shows the degree to which affiliates target their output to markets abroad rather than to the U.S. market.

The analysis in this article includes more detailed information than previous SURVEY articles, and it introduces a number of new features. First, each of the four measures for affiliates is compared with the corresponding measure for domestically owned companies in the same industries; the comparisons are made across 32 detailed manufacturing industries. Second, for affiliates in selected industries, data for a fixed panel of affiliates for 1988–94 are used to assess changes in affiliate behavior over time. Third, differences in affiliate domestic content and market orientation by country of ownership are systematically examined through comparisons of averages for the four measures that are adjusted for industry effects.

The overall profile of affiliate operations that emerges from this analysis reveals both similarities and differences between U.S. affiliates and domestically owned manufacturers. For both groups of firms, domestic content accounts for a high share of output. However, the share for affiliates is not quite as high as that for the domestically owned firms; the domestic-content share for affiliates tends to be lower than that for domestically owned companies across the detailed industries, and the difference at the aggregate level increases, rather than decreases, when industry mix is held constant.

The differences in content are attributable to differences in both value-added shares and the sourcing of intermediate inputs. Value added within the firm accounts for less than one-half of the value of output for both affiliates and domestically owned firms, but the value-added share for affiliates is somewhat smaller than the share for the domestically owned firms. Both affiliates and domestically owned firms purchase most of their inputs from domestic suppliers, but the share of imports in intermediate inputs is much higher for affiliates, largely due to their use of inputs purchased from their foreign parent companies and other affiliated foreign suppliers. With respect to market orientation, both U.S. affiliates and domestically owned manufacturers sell most of their output in the United States, but the share of exports in sales is somewhat smaller for affiliates than for the domestically owned firms.

The following are among the specific findings:

- The domestic content of gross output for all manufacturing affiliates is 87 percent, compared with 93 percent for domestically owned manufacturing companies. In most industries, the measure for affiliates is just below that for domestically owned companies.
- The domestic-content share for affiliates tends to be lowest in industries in machinery, transportation equipment, and instruments manufacturing—industries whose intermediate inputs consist mainly of manufactured components rather than commodity-type bulk materials.
- The value-added share of gross output for all manufacturing affiliates is 30 percent, compared with 37 percent for domestically owned manufacturing companies. In most of the 32 manufacturing industries, the value-added

6. See the section "Data used to construct measures" in the appendix.

7. See the discussion of affiliate linkages with host-country suppliers in John H. Dunning, *Multinational Enterprises and the Global Economy* (Wokingham, England: Addison-Wesley, 1993): 446–459.

share for affiliates is more than 20 percent lower than that for domestically owned companies.

- Affiliates rely on imports to a much greater degree than do domestically owned companies. The share of intermediate inputs that are imported is 19 percent for all manufacturing affiliates, compared with 11 percent for domestically owned companies. In about two-thirds of the 32 industries, the import share of intermediate inputs for affiliates is more than twice that for domestically owned companies.
- About two-thirds of the imports by U.S. manufacturing affiliates are obtained from the affiliates' foreign parent companies or other foreign firms with which the parents are associated.
- Production by U.S. manufacturing affiliates is strongly oriented toward the domestic market: The export share of sales for all manufacturing affiliates is only 10 percent, compared with 14 percent for domestically owned companies. The export share for affiliates is lower than that for domestically owned companies in about two-thirds of the 32 industries.
- For affiliates in the electronic components and motor vehicle industries, domestic content has increased over time, reflecting a decrease in the import share of intermediate inputs. In other machinery-type industries, however, the domestic-content and import-share measures for affiliates show no sustained trend. For affiliates in construction machinery, metalworking machinery, and instruments, the export share of sales has increased.
- German-, Swiss-, and Japanese-owned affiliates have the lowest average domestic content in comparison with domestically owned U.S. parent companies in comparable industries. The relatively low domestic content for German- and Swiss-owned affiliates reflects their relatively high reliance on imports for their purchased inputs. For Japanese-owned affiliates, the relatively low domestic content reflects a relatively low share of value added in gross output and a high share of imports in intermediate inputs.
- British-owned affiliates have the highest average domestic content, the highest average value-added share, and the lowest average import share of purchased inputs. The measures for these affiliates are closest to those for domestically owned companies in comparable industries, perhaps reflecting the fact that, compared with investments from other countries, British direct investment in U.S. manufacturing industries tends to be older and has almost exclusively taken the form of acquisitions of existing U.S. companies.
- For most of the investing countries, the average export share of sales for affiliates does not differ significantly from the export share for domestically owned companies. However, Japanese-owned affiliates have a high average share of exports in sales in comparison with domestically owned companies, particularly in such primary resource-intensive industries as lumber and wood products and food and kindred products other than beverages.

The next section of the article discusses the measures of domestic content and market orientation. The article then compares the industry-level estimates of the measures for U.S. affiliates with those for domestically owned manufacturing companies. Next, the article examines changes over time in the measures for a panel of affiliates in selected industries. It then examines differences in affiliate behavior by country of ultimate beneficial owner (UBO).[8] Finally, the article examines differences in the geographic pattern of international purchases and sales of affiliates by country of ownership. An appendix discusses the data used to construct the measures and investigates the extent to which the results are affected by imports unrelated to manufacturing production in the data for affiliates.

Measures of Content and Market Orientation

Data from BEA's benchmark and annual surveys of foreign direct investment in the United States were used to construct three measures that reveal information about the content of output of U.S. manufacturing affiliates: The domestic content of gross output, the value-added share of gross output, and the import share of intermediate inputs.

8. The UBO is that person, proceeding up a U.S. affiliate's ownership chain, beginning with and including the foreign parent, that is not owned more than 50 percent by another person. "Person" is broadly defined to include any individual, corporation, branch, partnership, associated group, association, estate, trust, or other organization and any government (including any corporation, institution, or other entity or instrumentality of a government). The foreign parent is the first foreign person in the affiliate's ownership chain. Unlike the foreign parent, the UBO of an affiliate is identified to ascertain the person that ultimately owns or controls the U.S. affiliate and that, therefore, ultimately derives the benefits from owning or controlling the affiliate.

The domestic content of gross output can be expressed as follows:

(1) Domestic Content of Gross Output
= (Gross Output – Imports) / Gross Output,

where gross output is computed as sales plus the change in end-of-year inventories (table 1).[9] As defined, domestic content for a U.S. affiliate is that portion of its gross output that is accounted for by wages and salaries, profits, and other incomes earned within the affiliates themselves and by the value of raw materials, components, and other inputs purchased from domestic suppliers.

Conceptually, gross output for a firm is equal to its value added, or gross product originating in the firm, plus the value of intermediate inputs purchased from others.[10] Because value added by an affiliate represents production in the country in which the affiliate is located, other things being equal, a higher share of value added in total output implies higher domestic content.[11] This share can be expressed as follows:

(2) Value-Added Share of Gross Output
= Gross Product / Gross Output

For a U.S. affiliate, the value-added share measures the portion of the affiliate's gross output that is accounted for by incomes earned by labor, capital, and other factors of production employed within the firm.

The other component of a firm's gross output is its intermediate inputs. These inputs can be procured either domestically or through imports. Other things being equal, a higher share of imports in intermediate inputs implies lower domestic content. This share can be expressed as follows:

(3) Import Share of Intermediate Inputs
= Imports / Intermediate Inputs
= Imports / (Gross Output – Gross Product),

where intermediate inputs is computed as a residual from the data on affiliates' gross output and gross product.[12] The import share of raw materials, components, and other purchased inputs provides a measure of the affiliates' reliance on imported versus domestically produced goods and services.

9. The data for affiliates are enterprise data that include some output unrelated to manufacturing: In 1994, about 15 percent of the sales by affiliates classified in manufacturing were accounted for by sales associated with secondary activities in other industries, most notably wholesale trade.

10. Intermediate inputs are goods and services that are consumed in production and that are purchased from other U.S. or foreign businesses.

11. However, in terms of the distribution of value added in the form of payments factors to production, some of the value added of an affiliate can be viewed as "foreign" insofar as it includes property income paid to the affiliate's foreign owners.

12. It should be noted that measures (1) and (3) capture direct (or first-round) imports only—they exclude any imports (direct or indirect) that may be embodied in the inputs purchased from domestic distributors or manufacturers. These measures also exclude purchases of services from abroad, because the benchmark and annual data on affiliate imports cover only imports of goods. In addition, it should be understood that the split between the domestic and foreign components in the measures is based on the geographic location of the suppliers of intermediate inputs—that is, whether or not the suppliers are located within the borders of the United States—not on their country of ownership; thus, intermediate inputs that are supplied to a U.S. affiliate by another U.S. affiliate are included in the domestic components.

Table 1.—Construction of Measures of the Domestic Versus Foreign Orientation of Production and Sales for U.S. Affiliates and Domestically Owned U.S. Parent Companies in Manufacturing, 1989 and 1994

Line		U.S. affiliates		U.S. parents	
		1989	1994	1989	1994
		Millions of dollars			
1	Sales	325,307	512,568	1,362,291	1,681,149
2	Inventories, end of current year	47,531	67,610	171,629	179,261
3	Inventories, end of previous year	42,022	62,902	n.a.	n.a.
4	Inventory change (line 2 – line 3) [1]	5,509	4,708	7,086	11,846
5	Gross output (line 1 + line 4)	330,816	517,276	1,369,377	1,692,995
6	Gross product	101,346	153,643	522,726	631,380
7	Intermediate inputs (line 5 – line 6)	229,470	363,633	846,650	1,061,615
8	Imports of goods	38,596	67,576	91,731	120,388
9	Exports of goods	29,355	48,815	158,892	234,221
10	Domestic content (line 5 – line 8) [2]	292,220	449,700	1,277,646	1,572,607
		Percent			
11	Domestic content as a percentage of gross output ((line 10 / line 5) * 100)	88.3	86.9	93.3	92.9
12	Value added as a percentage of gross output ((line 6 / line 5) * 100)	30.6	29.7	38.2	37.3
13	Imports as a percentage of intermediate inputs ((line 8 / line 7) * 100)	16.8	18.7	10.8	11.3
14	Exports as a percentage of sales ((line 9 / line 1) * 100)	9.0	9.5	11.7	13.9

1. For domestically owned U.S. parent companies, the change in inventories in 1993–94 was estimated by applying to the U.S.-parent-company data on inventories in 1994 the percentage by which inventories in the 1993 balance sheet differed from inventories in the 1994 balance sheet for U.S. manufacturing corporations reporting in *Corporation Source Book of Statistics of Income*, Washington, D.C.: Internal Revenue Service, U.S. Department of Treasury. The change in inventories in 1988–89 was similarly estimated using the balance sheet data on inventories for 1988 and 1989 reported in *Statistics of Income*.

2. Includes imported services and any imports that may be embodied in domestic purchases.

n.a. Not available.

The market orientation of affiliates is measured by the export share of sales, which is expressed as follows:[13]

(4) Export Share of Sales = Exports / Sales

This ratio measures the propensity of affiliates to sell their output abroad rather than to customers in the United States.

For this article, the four measures have been constructed for U.S. manufacturing affiliates at the level of 32 detailed manufacturing industries. For comparative purposes, each of these measures has been constructed by industry for a group of domestically owned companies in manufacturing—specifically, domestically owned U.S. parent companies in manufacturing. Domestically owned U.S. parent companies are highly comparable with U.S. affiliates because of their typically large size and their international orientation. In addition, these companies account for a large share of the total output of all domestically owned manufacturing companies—more than one-half of total output in 1994 (see the section "Data used to construct measures" in the appendix). In the rest of this article, the term "domestically owned companies" refers to "domestically owned U.S. parent companies."

13. The data for affiliate exports cover only exports of goods; they exclude exports of services. However, for manufacturing affiliates, exports of services tend to be very small: In 1994, services sold to foreign persons accounted for only 0.3 percent of the total sales of manufacturing affiliates.

Industry-Level Results

In this section, the measures of content and market orientation at the industry level for U.S. affiliates are compared with those for domestically owned companies. The comparisons are made across 32 detailed manufacturing industries for 1989 and 1994.[14]

Content of output

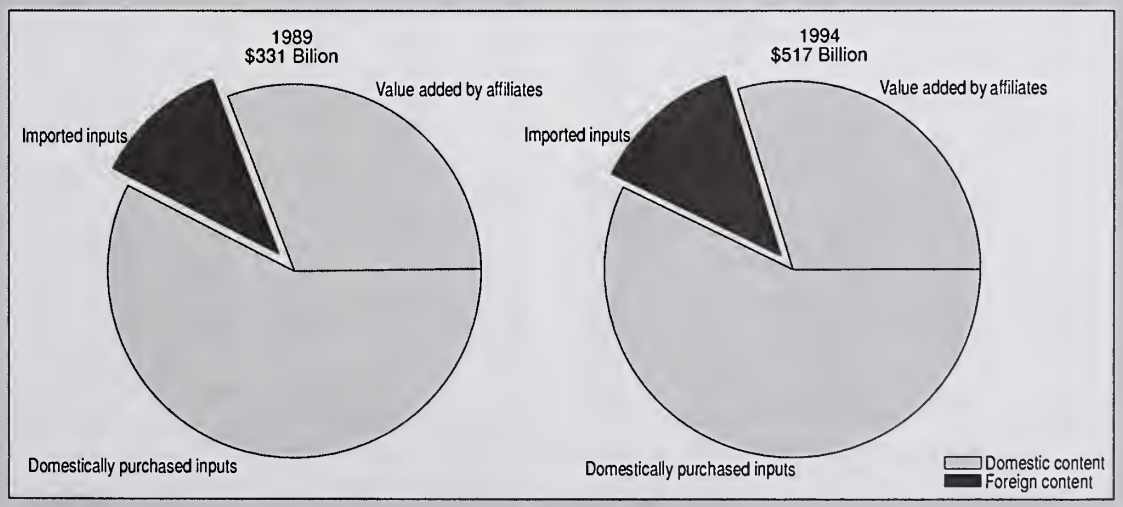
Domestic content.—In the aggregate, U.S. manufacturing affiliates display a high level of domestic content. In 1994, the domestic content of gross output for all manufacturing affiliates was 87 percent, compared with 93 percent for all domestically owned manufacturing companies (table 2). Of the domestic content, one-third represents value added by the affiliates, and two-thirds represents intermediate inputs purchased domestically (chart 1). The shares were similar in 1989.

The difference between the aggregate domestic-content shares for affiliates and the aggregate shares for domestically owned companies is more than accounted for by differences in domestic content within the 32 industries: As shown in the addendum to table 2, the aggregate domestic-content share for affiliates in 1994 would be reduced to 84 percent if the industry composition

14. It should be noted that differences between the measures for 1989 and 1994 may reflect changes in the population of affiliates through new investments or sell-offs as well as changes in the behavior of given affiliates. In addition, differences for individual industries may reflect changes in industry classification.

CHART 1

Content of Gross Output of U.S. Affiliates in Manufacturing



U.S. Department of Commerce, Bureau of Economic Analysis

of output for affiliates was the same as that for domestically owned companies.

By industry, the domestic content of affiliate output in 1989 and 1994 was more than 90 percent in about one-half of the 32 industries, and it was more than 80 percent in over four-fifths of the industries. In both years, the domestic content for affiliates was lower than that for domestically owned companies in all but two industries. However, in about two-thirds of the industries, the domestic-content shares of gross output for affiliates were within 10 percent of those for domestically owned companies.[15]

Both in absolute terms and in relation to the domestically owned companies, the domestic-content shares for affiliates tend to be lowest in "machinery-type" industries, which are defined here as the 12 industries in machinery, transportation equipment, and instruments manufacturing.[16] The intermediate inputs of these industries consist mainly of manufactured components, which may be subject to product differentiation across foreign and domestic suppliers, rather than of commodity-type bulk materials, which in the United States generally can be procured most cheaply from domestic suppliers because of transportation costs. In addition, because manufacturing in these industries involves the assembly of components, their production processes can often be separated into distinct

15. Across the 32 industries, the coefficient of correlation between the domestic-content measures for U.S. affiliates and the domestically owned companies is 0.68 in 1989 and 0.79 in 1994.

16. The 12 industries are construction and mining machinery; metalworking machinery; special industrial machinery; general industrial machinery; computer and office equipment; other industrial machinery and equipment; audio, video, and communications equipment; electronic components and accessories; household appliances and other electrical machinery; motor vehicles and equipment; other transportation equipment; and instruments and related products.

In 1994, these industries accounted for 32 percent of the gross output of all manufacturing affiliates and for 50 percent of the gross output of all domestically owned companies in manufacturing.

Table 2.—Domestic-Content Share of Gross Output for U.S. Affiliates and Domestically Owned U.S. Parent Companies in Manufacturing, by Industry, 1989 and 1994

	Domestic content as a percentage of gross output				Ratio of measure for U.S. affiliates to measure for U.S. parent companies		Addendum: Percent distribution of gross output in 1994	
	U.S. affiliates		U.S. parent companies					
	1989	1994	1989	1994	1989	1994	U.S. affiliates	U.S. parent companies
Manufacturing [1]	**88.3**	**86.9**	**93.3**	**92.9**	**0.95**	**0.94**	**100**	**100**
Beverages	88.4	89.2	99.1	98.6	.89	.90	1	5
Other food and kindred products	95.6	94.2	98.6	98.2	.97	.96	8	9
Textile mill products	85.8	94.5	99.4	98.0	.86	.96	1	1
Apparel and other textile products	91.9	91.4	94.8	94.2	.97	.97	1	1
Lumber and wood products	94.9	94.4	98.7	98.9	.96	.95	(*)	1
Furniture and fixtures	81.3	95.6	97.3	97.9	.84	.98	1	1
Paper and allied products	91.1	92.5	98.0	97.4	.93	.95	2	6
Printing and publishing	98.9	98.7	97.6	98.7	1.01	1.00	4	3
Industrial chemicals and synthetics	91.2	90.5	95.1	94.5	.96	.96	13	5
Drugs	88.8	87.1	97.4	97.0	.91	.90	8	5
Soap, cleaners, and toilet goods	97.6	97.5	95.2	97.0	1.03	1.01	4	2
Other chemicals	91.7	87.4	97.0	98.3	.95	.89	3	2
Rubber products	92.1	82.5	93.9	92.8	.98	.89	2	1
Miscellaneous plastics products	88.9	89.0	98.0	97.6	.91	.91	1	1
Glass products	92.5	90.9	98.7	98.9	.94	.92	1	1
Stone, clay, and concrete products	95.8	95.1	97.9	97.7	.98	.97	3	1
Primary ferrous metals	92.0	89.2	95.8	95.3	.96	.94	4	1
Primary nonferrous metals	82.1	82.4	92.5	93.9	.89	.88	3	2
Fabricated metal products	93.7	90.8	98.3	97.8	.95	.93	5	2
Construction and mining machinery [2]	85.7	71.7	88.5	89.1	.97	.80	2	1
Metalworking machinery [2]	79.5	82.5	92.3	95.7	.86	.86	1	(*)
Special industrial machinery [2]	88.1	82.4	96.1	96.6	.92	.85	1	(*)
General industrial machinery [2]	72.7	86.9	97.4	90.1	.75	.97	2	1
Computer and office equipment [2]	71.2	66.5	86.7	80.4	.82	.83	2	6
Other industrial machinery and equipment [2]	92.2	83.0	93.4	94.2	.99	.88	2	2
Audio, video, and communications equipment [2]	66.5	68.9	93.7	91.4	.71	.75	4	1
Electronic components and accessories [2]	77.3	78.8	87.9	91.2	.88	.86	2	6
Household appliances and other electrical machinery [2]	87.2	82.2	98.0	96.7	.89	.85	6	3
Motor vehicles and equipment [2]	57.3	74.2	81.5	83.9	.70	.88	6	18
Other transportation equipment [2]	82.7	83.8	97.5	96.1	.85	.87	1	7
Instruments and related products [2]	90.0	90.9	95.3	94.3	.94	.96	3	4
Other manufacturing	91.9	91.9	97.2	95.1	.95	.97	2	1
Addendum:								
Manufacturing, standardized for industry mix [3]	82.0	84.0	93.3	92.9	.88	.90	.....	.....

* Less than 0.5 percent.

1. Excludes petroleum and coal products manufacturing, which, in BEA's data on direct investment, is classified under the major industry "petroleum."

2. "Machinery-type" industries.

3. The measures shown in columns 1–4 of this line were derived as weighted averages of the measures for individual industries, using—for both U.S. affiliates and U.S. parent companies—the industry shares in U.S.-parent-company gross output as the weights. For U.S. parents, the measures so derived are identical to those shown in line 1. For U.S. affiliates, they show what the domestic-content shares would have been if the shares for each industry had been as shown, but the industry composition of output had been the same as that for U.S. parents. With industry mix differences thus controlled for, the ratios of the measures for affiliates to the measures for U.S. parents (shown in columns 5 and 6) indicate differences in domestic content attributable to within-industry differences alone.

NOTE.—See the section in the appendix on data used to construct measures.

stages that can be performed in different locations, permitting a greater degree of outsourcing in a firm's production. Finally, the relatively low domestic content in these industries may reflect the existence of some direct investment in final-assembly operations that were put in place in response to potential or actual barriers to the importation of final goods produced by the foreign parent firms.

In 1994, the domestic-content shares for affiliates were less than 75 percent in four industries, all of which are machinery-type industries: Computer and office equipment (67 percent); audio, video, and communications equipment (69 percent); construction and mining machinery (72 percent); and motor vehicles and equipment (74 percent).[17] The relatively low domestic content in these industries reflects their reliance on foreign sources for the affiliates' intermediate inputs; imports accounted for more than 30 percent of affiliate purchases of intermediate inputs in each industry. In the computer and motor vehicle industries, the low domestic-content share also reflects a low share of value added in gross output.

Value-added shares.—In 1994, value added accounted for 30 percent of the gross output of all manufacturing affiliates, compared with a value-added share of 37 percent for domestically owned companies in manufacturing (table 3). The difference in shares at the aggregate level is more than accounted for by differences within the 32 industries: The value-added share for all affiliates would have been 27 percent if the industry

17. A substantial portion of the data for affiliates in motor vehicles and equipment is accounted for by affiliates that produce motor vehicle parts and accessories. In addition, some of the largest affiliates with operations in automobile manufacturing are classified in wholesale trade (where their sales are largest) rather than in manufacturing. In 1994, five affiliates that were classified in motor vehicles wholesale trade had at least one-fourth of their sales in motor vehicles manufacturing; these affiliates were primarily engaged in the distribution of vehicles or parts manufactured by their foreign parents. As might be expected, their domestic-content share of output—60 percent—was significantly below that of the affiliates classified as manufacturers of motor vehicles and equipment.

Table 3.—Value-Added Share of Gross Output for U.S. Affiliates and Domestically Owned U.S. Parent Companies in Manufacturing, by Industry, 1989 and 1994

	Value added as a percentage of gross output				Ratio of measure for U.S. affiliates to measure for U.S. parent companies	
	U.S. affiliates		U.S. parent companies			
	1989	1994	1989	1994	1989	1994
Manufacturing [1]	**30.6**	**29.7**	**38.2**	**37.3**	**0.80**	**0.80**
Beverages	32.0	30.9	45.3	42.4	.71	.73
Other food and kindred products	21.7	23.9	29.2	24.8	.74	.97
Textile mill products	31.8	36.9	38.8	39.8	.82	.93
Apparel and other textile products	28.2	32.6	37.6	38.9	.75	.84
Lumber and wood products	33.5	32.3	32.4	33.5	1.03	.96
Furniture and fixtures	25.4	21.0	40.4	41.2	.63	.51
Paper and allied products	37.2	31.8	42.3	38.0	.88	.84
Printing and publishing	29.9	38.7	41.8	45.8	.72	.84
Industrial chemicals and synthetics	35.6	35.8	43.5	38.5	.82	.93
Drugs	37.9	35.1	54.4	46.0	.70	.76
Soap, cleaners, and toilet goods	23.1	26.0	33.0	36.8	.70	.71
Other chemicals	28.0	25.6	36.8	35.0	.76	.73
Rubber products	33.9	37.3	41.8	44.7	.81	.83
Miscellaneous plastics products	26.6	29.0	34.9	37.2	.76	.78
Glass products	39.6	33.2	51.9	43.9	.76	.76
Stone, clay, and concrete products	33.6	36.0	38.9	31.9	.86	1.13
Primary ferrous metals	27.7	27.5	35.3	35.6	.79	.77
Primary nonferrous metals	24.7	19.7	40.1	30.3	.62	.65
Fabricated metal products	33.2	26.9	33.1	38.9	1.00	.69
Construction and mining machinery [2]	27.4	23.8	34.2	34.5	.80	.69
Metalworking machinery [2]	32.1	31.1	34.1	34.4	.94	.91
Special industrial machinery [2]	33.8	27.0	40.6	39.3	.83	.69
General industrial machinery [2]	32.9	36.9	44.2	45.6	.74	.81
Computer and office equipment [2]	41.6	15.4	45.0	36.0	.93	.43
Other industrial machinery and equipment [2]	28.9	26.6	37.4	33.3	.77	.80
Audio, video, and communications equipment [2]	29.3	24.4	37.4	31.4	.78	.78
Electronic components and accessories [2]	32.9	27.1	43.8	36.3	.75	.75
Household appliances and other electrical machinery [2]	28.9	29.9	41.6	42.1	.69	.71
Motor vehicles and equipment [2]	12.9	18.9	27.5	33.4	.47	.57
Other transportation equipment [2]	26.8	29.0	43.2	44.3	.62	.66
Instruments and related products [2]	37.3	38.9	49.1	49.9	.76	.78
Other manufacturing	39.6	37.2	39.9	43.1	.99	.86
Addendum:						
Manufacturing, standardized for industry mix [3]	28.0	27.0	38.2	37.3	.73	.72

1. See table 2, footnote 1.
2. "Machinery-type" industries.
3. See table 2, footnote 3.

NOTE.—See the section in the appendix on data used to construct measures.

composition of output for affiliates had been the same as that for domestically owned companies.

By industry, the value-added shares of gross output for affiliates were less than 40 percent in all 32 industries and were less than 30 percent in 17 industries. The value-added shares were lowest in computer and office equipment (15 percent), motor vehicles and equipment (19 percent), and primary nonferrous metals (20 percent). The value-added shares for domestically owned companies in these industries were also relatively low.[18]

The value-added shares for affiliates were lower than those for domestically owned companies in 30 industries in 1989 and in 31 industries in 1994; in most industries, the shares for affiliates were at least 20 percent lower than those for domestically owned companies. In both years, the value-added shares for affiliates were more than 30 percent lower than those for domestically owned companies in four industries—furniture and fixtures, primary nonferrous metals, motor vehicles and equipment, and other transportation equipment—indicating that the production operations of affiliates in these industries tend to be much less vertically integrated than the operations of their domestically owned counterparts.

Imported inputs.—Both in the aggregate and across industries, affiliates purchase most of their intermediate inputs from domestic suppliers, but they rely on imports to a much greater degree than do domestically owned companies. In 1994, the import share of intermediate inputs purchased by all manufacturing affiliates was 19 percent, compared with an import share of 11 percent for domestically owned companies in

18. The value-added shares for affiliates and for domestically owned companies tend to be higher or lower in the same industries: Across the 32 industries, the coefficient of correlation between the value-added shares for U.S. affiliates and those for domestically owned companies is 0.69 in 1989 and 0.61 in 1994. For both U.S. affiliates and domestically owned companies, the machinery-type industries are among the industries with the highest and lowest value-added shares.

Table 4.—Import Share of Intermediate Inputs for U.S. Affiliates and Domestically Owned U.S. Parent Companies in Manufacturing, by Industry, 1989 and 1994

	Imports as a percentage of intermediate inputs				Ratio of measure for U.S. affiliates to measure for U.S. parent companies	
	U.S. affiliates		U.S. parent companies			
	1989	1994	1989	1994	1989	1994
Manufacturing [1]	16.8	18.7	10.8	11.3	1.55	1.65
Beverages	17.0	15.6	1.7	2.4	9.92	6.38
Other food and kindred products	5.6	7.6	1.9	2.4	2.93	3.16
Textile mill products	20.8	8.8	1.0	3.4	20.79	2.58
Apparel and other textile products	11.3	12.7	8.4	9.5	1.36	1.33
Lumber and wood products	7.7	8.3	1.9	1.7	3.95	4.92
Furniture and fixtures	25.0	5.6	4.6	3.5	5.47	1.60
Paper and allied products	14.1	11.0	3.6	4.2	3.98	2.59
Printing and publishing	1.5	2.1	4.2	2.4	.37	.90
Industrial chemicals and synthetics	13.6	14.8	8.7	9.0	1.57	1.65
Drugs	18.1	19.9	5.6	5.6	3.22	3.59
Soap, cleaners, and toilet goods	3.1	3.4	7.2	4.7	.44	.71
Other chemicals	11.5	17.0	4.7	2.6	2.46	6.48
Rubber products	11.9	27.9	10.5	13.1	1.13	2.13
Miscellaneous plastics products	15.0	15.5	3.0	3.9	5.00	3.99
Glass products	12.4	13.6	2.8	1.9	4.52	7.19
Stone, clay, and concrete products	6.3	7.7	3.5	3.4	1.83	2.27
Primary ferrous metals	11.1	14.8	6.4	7.2	1.72	2.05
Primary nonferrous metals	23.8	21.9	12.6	8.8	1.89	2.50
Fabricated metal products	9.4	12.5	2.5	3.7	3.72	3.40
Construction and mining machinery [2]	19.7	37.1	17.5	16.6	1.13	2.23
Metalworking machinery [2]	30.2	25.5	11.7	6.6	2.57	3.88
Special industrial machinery [2]	18.0	24.1	6.5	5.6	2.75	4.34
General industrial machinery [2]	40.7	20.7	4.7	18.3	8.70	1.13
Computer and office equipment [2]	49.4	39.6	24.1	30.6	2.05	1.29
Other industrial machinery and equipment [2]	11.0	23.2	10.6	8.7	1.04	2.66
Audio, video, and communications equipment [2]	47.4	41.1	10.0	12.5	4.74	3.30
Electronic components and accessories [2]	33.8	29.1	21.5	13.8	1.57	2.11
Household appliances and other electrical machinery [2]	18.0	25.4	3.3	5.7	5.39	4.43
Motor vehicles and equipment [2]	49.1	31.8	25.5	24.1	1.93	1.32
Other transportation equipment [2]	23.7	22.8	4.4	7.1	5.38	3.23
Instruments and related products [2]	15.9	14.9	9.2	11.4	1.73	1.31
Other manufacturing	13.4	12.9	4.6	8.7	2.90	1.49
Addendum:						
Manufacturing, standardized for industry mix [3]	24.9	20.6	10.8	11.3	2.29	1.82

1. See table 2, footnote 1.
2. "Machinery-type" industries
3. The measures shown in columns 1–4 of this line were derived as weighted averages of the measures for individual industries, using the industry shares in U.S.-parent-company intermediate inputs as the weights. See table 2, footnote 3.

NOTE.—See the section in the appendix on data used to construct measures.

manufacturing (table 4).[19] As with the domestic-content and value-added shares, the difference between the import shares at the aggregate level is more than accounted for by differences within industries: The import share for affiliates would have been 21 percent if the industry composition of output for affiliates had been the same as that for domestically owned companies.

In both 1989 and 1994, the import shares of intermediate inputs were higher for affiliates than for domestically owned companies in all but two industries (printing and publishing and soap, cleaners, and toilet goods). In about two-thirds of the industries, the import shares for affiliates were more than twice as high as those for domestically owned companies. However, in many of these industries, the high ratios reflect very low import shares for domestically owned companies; for example, in the three industries in which the ratios were higher than 6 in 1994—glass products, other chemicals, and beverages—the import shares for domestically owned companies were lower than 3 percent.[20]

For both U.S. affiliates and domestically owned companies, the import shares of intermediate inputs have tended to be highest in machinery-type industries: In 1994, these industries accounted for 9 of the 10 industries with the highest import shares for U.S. affiliates and for 7 of the 10 industries with the highest import shares for domestically owned companies.[21] For affiliates, the import shares were highest in audio, video, and communications equipment (41 percent) and in computer and office equipment (40 percent). For domestically owned companies, the import shares were highest in computer and office equipment (31 percent) and in motor vehicles and equipment (24 percent).

In five machinery-type industries—household appliances and other electrical machinery; special industrial machinery; metalworking machinery; audio, video, and communications equipment; and "other" transportation equipment—the import shares for affiliates in 1994 were more than three times as high as the shares for the domestically owned companies. The relatively high import shares for these affiliates appear to reflect a high reliance on their parent companies for specialized inputs; in each industry, more than two-thirds of the affiliates' imports were from their foreign parents and other members of their foreign parent groups (table 5).[22] In some cases, this reliance may reflect direct invest-

19. As noted before, these estimates understate the import content of intermediate inputs to the extent that imports are embodied in the inputs purchased from domestic suppliers. A rough estimate indicates that the share of imports in inputs purchased from domestic suppliers may be as high as 7 percent for all manufacturing affiliates and as high as 4 percent for all domestically owned companies in manufacturing. This share, which probably represents an upper bound, is based on an estimate of the imports used by all manufacturing establishments computed from data in BEA's 1992 benchmark input-output accounts. Adding the estimated value of imports in domestically supplied intermediate inputs to the data on direct imports, the respective import shares of intermediate inputs for U.S. manufacturing affiliates and domestically owned U.S. parent companies in manufacturing in 1994 are estimated to be 24 percent and 15 percent; their domestic content shares are estimated to be 83 percent and 90 percent.

20. The relatively high import share for affiliates in the beverage industry appears to reflect their secondary operations in wholesale trade: As shown in the appendix, most of the imports by these affiliates are goods for resale without further manufacture by the affiliates.

21. Across the 32 industries, the coefficient of correlation between the import share of intermediate inputs for U.S. affiliates and that for the domestically owned companies is 0.65 in 1989 and 0.74 in 1994.

22. The foreign parent group consists of (1) the foreign parent, (2) any foreign person, proceeding up the foreign parent's ownership chain, that owns more than 50 percent of the person below it, up to and including the ultimate beneficial owner, and (3) any foreign person, proceeding down the ownership chain(s) of each of these members, that is owned more than 50 percent by the person above it.

Table 5.—Intrafirm Imports of U.S. Affiliates as a Percentage of Affiliates' Total Imports and Intermediate Inputs, 1989 and 1994

	Intrafirm imports as a percentage of total imports		Intrafirm imports as a percentage of intermediate inputs	
	1989	1994	1989	1994
Manufacturing [1]	69.0	69.7	11.6	12.9
Beverages	54.4	67.5	9.3	10.5
Other food and kindred products	39.9	56.4	2.3	4.3
Textile mill products	55.0	54.8	11.4	4.8
Apparel and other textile products	72.0	52.9	8.2	6.7
Lumber and wood products	27.0	55.2	2.1	4.6
Furniture and fixtures	79.3	50.5	19.9	2.8
Paper and allied products	67.8	65.0	9.6	7.1
Printing and publishing	38.1	48.4	.6	1.0
Industrial chemicals and synthetics	63.1	48.0	8.6	7.1
Drugs	94.5	90.2	17.1	18.0
Soap, cleaners, and toilet goods	44.3	75.8	1.4	2.5
Other chemicals	75.8	93.2	8.7	15.8
Rubber products	57.3	64.6	6.8	18.0
Miscellaneous plastics products	91.9	41.0	13.8	6.3
Glass products	57.7	92.9	7.2	12.7
Stone, clay, and concrete products	37.4	48.4	2.4	3.7
Primary ferrous metals	52.8	51.2	5.8	7.6
Primary nonferrous metals	71.7	76.1	17.0	16.6
Fabricated metal products	59.1	70.1	5.6	8.8
Construction and mining machinery [2]	60.5	73.6	11.9	27.3
Metalworking machinery [2]	89.8	70.5	27.1	18.0
Special industrial machinery [2]	69.3	76.3	12.4	18.4
General industrial machinery [2]	90.6	82.5	36.9	17.1
Computer and office equipment [2]	93.9	42.9	46.3	17.0
Other industrial machinery and equipment [2]	65.0	80.6	7.2	18.7
Audio, video, and communications equipment [2]	52.6	70.7	24.9	29.1
Electronic components and accessories [2]	62.9	56.0	21.3	16.3
Household appliances and other electrical machinery [2]	77.8	67.9	14.0	17.3
Motor vehicles and equipment [2]	95.2	92.3	46.7	29.4
Other transportation equipment [2]	88.5	87.7	21.0	20.0
Instruments and related products [2]	72.9	71.3	11.6	10.6
Other manufacturing	32.1	48.0	4.3	6.2

1. See table 2, footnote 1.
2. "Machinery-type" industries

NOTES.—Intrafirm imports are imports by affiliates from their foreign parent groups (see footnote 22 in the text).
See the section in the appendix on data used to construct measures.

ment in final-assembly operations by the parent companies that may have been in response to potential or actual trade barriers.

Intrafirm imports accounted for about two-thirds of the imports by all manufacturing affiliates in both 1989 and 1994. By industry, the intrafirm shares of affiliate imports have been particularly high in the drug industry and in most of the machinery-type industries. In a number of machinery-type industries, intrafirm imports have accounted for a substantial share—more than 20 percent—of the affiliates' total purchases of intermediate inputs, suggesting that affiliates in these industries may rely extensively on their parent companies (or other foreign firms with which the parents have ownership ties) for customized parts and other inputs subject to product differentiation across firms. In many cases, foreign multinationals with affiliates in these industries may be able to realize economies of scale in the design and production of firm-specific parts and components by concentrating their production in one location rather than trying to produce the parts in each country in which they have affiliates.

Market for output

Production by U.S. manufacturing affiliates is targeted for the U.S. market even more than the production by domestically owned manufacturers. For all manufacturing affiliates combined, exports accounted for only about 10 percent of total sales in 1994, compared with 14 percent of total sales for the domestically owned companies (table 6).[23]

The export shares for affiliates were less than those for domestically owned companies in 20 industries in 1989 and in 22 industries in 1994. The

23. The low export share for affiliates in comparison with that for domestically owned companies in manufacturing does not reflect differences in industry mix: As shown in the addendum to table 6, the aggregate share for affiliates would be 9.4 percent instead of 9.5 percent if the industry composition of output for affiliates was the same as that for domestically owned companies.

Table 6.—Export Share of Sales for U.S. Affiliates and Domestically Owned U.S. Parent Companies in Manufacturing, by Industry, 1989 and 1994

	Exports as a percentage of sales				Ratio of measure for U.S. affiliates to measure for U.S. parent companies	
	U.S. affiliates		U.S. parent companies			
	1989	1994	1989	1994	1989	1994
Manufacturing [1]	**9.0**	**9.5**	**11.7**	**13.9**	**0.77**	**0.68**
Beverages	2.0	4.1	6.1	5.9	.33	.69
Other food and kindred products	3.6	5.2	5.4	8.4	.67	.62
Textile mill products	6.2	7.3	4.4	5.7	1.41	1.28
Apparel and other textile products	4.6	3.6	2.1	2.6	2.22	1.36
Lumber and wood products	B	A	12.9	8.4	(D)	(D)
Furniture and fixtures	A	A	3.2	5.8	(D)	(D)
Paper and allied products	8.8	11.0	7.3	10.0	1.20	1.11
Printing and publishing	1.6	1.6	.7	1.4	2.31	1.14
Industrial chemicals and synthetics	13.4	12.8	12.5	17.9	1.07	.71
Drugs	5.7	7.4	10.3	9.6	.55	.77
Soap, cleaners, and toilet goods	2.3	4.1	3.8	4.4	.60	.93
Other chemicals	10.0	10.8	11.9	12.6	.84	.86
Rubber products	5.6	9.0	7.8	9.2	.72	.98
Miscellaneous plastics products	4.8	5.8	6.5	8.1	.74	.72
Glass products	7.9	5.7	7.2	9.7	1.09	.59
Stone, clay, and concrete products	2.0	2.8	3.9	6.1	.52	.46
Primary ferrous metals	2.8	2.5	3.7	6.9	.75	.37
Primary nonferrous metals	9.6	10.6	10.0	10.9	.96	.97
Fabricated metal products	7.3	7.0	5.8	8.0	1.27	.88
Construction and mining machinery [2]	11.0	18.1	19.1	28.4	.58	.64
Metalworking machinery [2]	8.9	12.0	13.6	8.1	.65	1.47
Special industrial machinery [2]	12.4	17.2	16.6	25.3	.75	.68
General industrial machinery [2]	8.4	9.3	16.3	19.2	.52	.49
Computer and office equipment [2]	21.1	12.1	22.8	25.8	.93	.47
Other industrial machinery and equipment [2]	5.2	11.9	12.7	15.5	.41	.77
Audio, video, and communications equipment [2]	27.7	14.5	11.4	14.0	2.42	1.03
Electronic components and accessories [2]	16.1	15.7	22.5	22.2	.72	.71
Household appliances and other electrical machinery [2]	9.9	16.2	8.5	12.3	1.15	1.31
Motor vehicles and equipment [2]	3.8	6.1	13.8	15.0	.28	.41
Other transportation equipment [2]	19.3	14.3	20.3	25.5	.95	.56
Instruments and related products [2]	13.7	17.5	15.5	16.5	.88	1.06
Other manufacturing	8.8	19.8	6.0	11.0	1.47	1.80
Addendum:						
Manufacturing, standardized for industry mix [3]	9.9	9.4	11.7	13.9	.85	.68

(D) Suppressed to avoid disclosure of data of individual companies.
1. See table 2, footnote 1.
2. "Machinery-type" industries
3. The measures shown in columns 1–4 of this line were derived as weighted averages of the measures for individual industries, using the industry shares in U.S.-parent-company sales as the weights. See table 2, footnote 3.

NOTES.—See the section in the appendix on data used to construct measures.
Size ranges are given in the percentage cells that are suppressed; these ranges are A—0.01 to 19.9; B—20.0 to 39.9; C—40.0 to 59.9; E—60.0 to 79.9; F—80.0 to 100.

lower export propensity of U.S. affiliates suggests that the affiliates operate in the United States to service the U.S. market rather than to exploit any locational advantages associated with production in the United States (such as proximity to U.S. research centers) to service worldwide markets. Foreign multinationals appear to service non-U.S. markets primarily through sales by the parent companies or affiliates located in other countries.

For both U.S. affiliates and the domestically owned companies, the export shares of sales have tended to be highest in machinery-type industries.[24] In most of these industries, the export shares for affiliates were substantially lower than those for the domestically owned companies in both 1989 and 1994; in motor vehicles and equipment, the export share for affiliates was less than one-half as much as the share for the domestically owned companies. However, in audio, video, and communications equipment and in household appliances and other electrical machinery, the export shares for affiliates were higher than those for the domestically owned companies.

In contrast to affiliate imports, which have been dominated by trade with the affiliates' foreign parent groups, affiliate exports have been mainly accounted for by trade with unrelated parties (table 7). In both 1989 and 1994, intrafirm exports accounted for only one-fourth of the total exports of all manufacturing affiliates and for less than one-half of affiliate exports in all but a few industries. In 1994, intrafirm exports accounted for less than 3 percent of total sales and for less than 6 percent of sales for any of the 32 industries.

24. The export shares of sales for U.S. affiliates and domestically owned companies tend to be higher or lower in the same industries: Across the 32 industries, the coefficient of correlation between the export share for U.S. affiliates and that for domestically owned companies is 0.69 in 1989 and 0.75 in 1994.

Table 7.—Intrafirm Exports of U.S. Affiliates as a Percentage of Affiliates' Total Exports and Sales, 1989 and 1994

	Intrafirm exports as a percentage of total exports		Intrafirm exports as a percentage of sales	
	1989	1994	1989	1994
Manufacturing [1]	**25.3**	**28.4**	**3.2**	**2.7**
Beverages	33.3	41.6	1.0	1.7
Other food and kindred products	33.1	35.9	1.5	1.9
Textile mill products	23.2	16.4	2.1	1.2
Apparel and other textile products	90.5	53.8	5.5	1.9
Lumber and wood products	26.7	23.6	(D)	(D)
Furniture and fixtures	94.1	1.2	(D)	(*)
Paper and allied products	45.0	37.2	6.2	4.1
Printing and publishing	20.3	31.2	.5	.5
Industrial chemicals and synthetics	21.8	17.8	4.5	2.3
Drugs	50.4	54.6	4.6	4.0
Soap, cleaners, and toilet goods	15.3	50.7	.4	2.1
Other chemicals	11.9	48.5	1.6	5.3
Rubber products	26.0	21.4	2.2	1.9
Miscellaneous plastics products	42.6	17.2	2.7	1.0
Glass products	14.3	9.0	1.9	.5
Stone, clay, and concrete products	10.0	13.2	.3	.4
Primary ferrous metals	27.3	16.1	1.0	.4
Primary nonferrous metals	42.1	37.4	5.3	4.0
Fabricated metal products	11.5	14.3	1.2	1.0
Construction and mining machinery [2]	11.2	24.7	1.7	4.5
Metalworking machinery [2]	49.2	33.0	6.2	4.0
Special industrial machinery [2]	29.5	14.4	5.5	2.5
General industrial machinery [2]	55.7	26.0	6.7	2.4
Computer and office equipment [2]	23.9	33.5	8.6	4.0
Other industrial machinery and equipment [2]	26.9	24.1	1.9	2.9
Audio, video, and communications equipment [2]	13.6	29.4	5.2	4.3
Electronic components and accessories [2]	38.7	24.4	9.2	3.8
Household appliances and other electrical machinery [2]	39.0	30.0	5.3	4.9
Motor vehicles and equipment [2]	21.0	32.1	.9	2.0
Other transportation equipment [2]	14.1	24.4	3.6	3.5
Instruments and related products [2]	29.0	25.2	6.3	4.4
Other manufacturing	29.6	27.3	4.3	5.4

* Less than 0.05 percent.
D Suppressed to avoid disclosure of data of individual companies.
1. See table 2, footnote 1.
2. "Machinery-type" industries.

NOTES.—Intrafirm exports are exports by affiliates to their foreign parent groups. See the section in the appendix on data used to construct measures.

Trends in Content and Market Orientation

This section examines the changes in the domestic content of production and in the market orientation of sales for a panel of U.S. manufacturing affiliates in 1988–94.

In the case of investment in new manufacturing facilities—often referred to as "greenfield" investment—foreign direct investment typically begins with affiliates undertaking final assembly operations that rely heavily on components and parts from the foreign parent or other suppliers abroad. Over time, these affiliates are expected to increase the domestic content of their output through vertical expansion of their production operations, which results in a higher share of value added in gross output, and through increased procurement from domestic suppliers, which results in a lower share of imports in intermediate inputs. In addition, affiliates that were initially set up to service the domestic market begin with a very low export share of sales, but this share is expected to increase with the expanded scale of production operations over time.

For U.S. affiliates, however, the expected pattern of affiliate behavior over time is more ambiguous, because much of the foreign direct investment in U.S. manufacturing industries has been to acquire existing U.S. companies. In some cases, an acquisition may simply represent a change in management and results in no change in domestic content or the international orientation of sales. In other cases, the domestic content of an acquired firm might decrease, as the firm's

operations become more integrated with those of its foreign parent.

To investigate changes in domestic content and market orientation that are isolated from the effects of changes in the population of affiliates, a panel was constructed of affiliates that were classified in the 12 machinery-type industries in 1994 and that existed in each of the years 1987–94 (see the section "Data used to construct measures" in the appendix).[25] Affiliates in the machinery-type industries are of special interest because the shares of both imports in intermediate inputs and exports in sales tend to be the highest in these industries. The affiliates in the panel account for a dominant share—69 percent—of the gross output of all affiliates in machinery-type industries in 1994.

Aggregating the data for affiliates in the panel, the four measures have been computed at the industry level for each of the years 1988–94. The results show little sustained change in affiliate behavior; in most industries, the four measures are either steady or fluctuate without showing a trend (table 8). However, in the few industries in which a sustained trend is shown, the movement is in the direction described in the discussion on greenfield investment.

In two industries—electronic components and motor vehicles—the domestic content of affiliate output trends upward, reflecting, in each industry, a sustained decrease in the import share of the affiliates' intermediate inputs—from more than 50 percent in 1988 to less than 35 percent in 1994 (chart 2). The upward trend in domestic content for affiliates in the motor vehicles industry is consistent with expectations, given that this industry has been characterized by a high degree of greenfield investment in relation to foreign acquisition activity.

In a number of industries, the import shares of intermediate inputs drop sharply between 1988 and 1989, perhaps because of lagged substitution effects in response to the substantial depreciation of the U.S. dollar in international currency markets in 1985–88.[26] After this drop, the import shares fluctuate in most industries but show a high degree of stability in two industries: Metalworking machinery and household appliances and other electrical machinery.

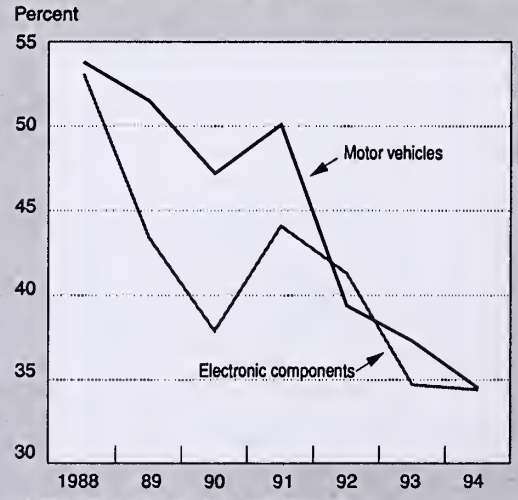
The export shares of affiliate sales trend upward in three industries: Construction machinery, metalworking machinery, and instruments and related products (chart 3). In each of these industries, the export share has more than doubled since 1988, suggesting an expanded orientation toward world markets that reflected locational advantages associated with production in the

25. As noted earlier, differences between years in the measures for the universe of affiliates may reflect not only changes in the behavior of individual affiliates but also changes in the population of affiliates. While working with a panel of affiliates is an important step towards isolating changes in the behavior of economic entities from changes in the population of entities, there may be some problems in drawing inferences based on changes in operating behavior even for the same set of affiliates, because some of these affiliates may have acquired or sold off operating units during this period.

26. In 1985–88, the multilateral trade-weighted value of the U.S. dollar in real terms depreciated 33 percent. See the *Economic Report of the President* (Washington, DC: U.S. Government Printing Office, February 1997): Table B–108.

CHART 2

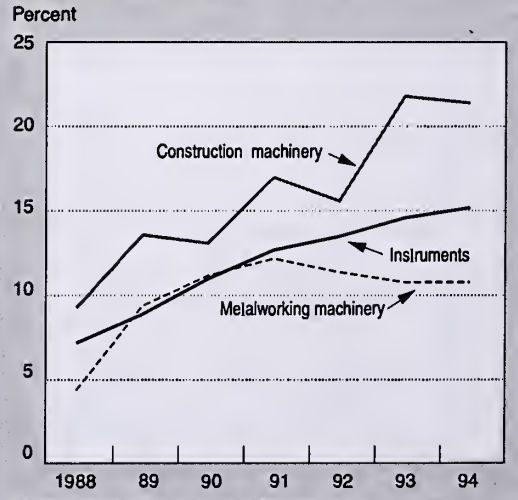
Import Share of Intermediate Inputs: Selected Industries, 1988-94



U.S. Department of Commerce, Bureau of Economic Analysis

CHART 3

Export Share of Sales: Selected Industries, 1988-94



U.S. Department of Commerce, Bureau of Economic Analysis

United States. Particularly in an industry such as instruments, in which the United States is very competitive in world markets, affiliates initially set up to service the U.S. market may turn increasingly to exports as they expand operations.[27]

27. Census Bureau data on trade in goods by product indicate that U.S. exports of professional, scientific, and controlling instruments were about double U.S. imports in each of the years 1988–94.

Comparisons by Country of Ownership

This section examines the differences in the four measures of domestic content and market orientation among affiliates with ultimate beneficial owners in six major investing countries: Canada, France, Germany, Switzerland, the United Kingdom, and Japan. In terms of affiliate value added and gross output, these six countries are the largest investing countries in U.S. manufactur-

Table 8.—Measures for a Panel of U.S. Affiliates in Machinery-Type Industries, 1988–94

	1988	1989	1990	1991	1992	1993	1994
Domestic content as a percentage of gross output:							
Construction and mining machinery	72.8	77.2	77.7	83.2	78.0	76.1	70.3
Metalworking machinery	76.9	81.6	81.1	81.1	80.7	80.5	80.3
Special industrial machinery	85.7	85.6	87.0	84.5	86.4	85.8	84.8
General industrial machinery	83.0	85.1	85.5	86.4	87.7	88.6	86.3
Computer and office equipment	E	C	C	C	C	60.2	75.0
Other industrial machinery and equipment	85.9	85.0	83.2	68.5	83.0	75.7	75.5
Audio, video, and communications, equipment	62.2	65.2	64.8	71.8	67.6	69.0	68.1
Electronic components and accessories	62.7	69.0	71.7	68.9	71.9	74.8	74.5
Household appliances and other electrical machinery	78.7	82.1	80.6	81.5	81.4	79.9	80.3
Motor vehicles and equipment	54.7	55.3	59.7	58.5	67.2	68.9	71.3
Other transportation equipment	70.3	78.6	80.9	82.3	83.0	78.9	76.4
Instruments and related products	87.3	89.1	89.7	91.7	91.7	91.2	90.7
Value added as a percentage of gross output:							
Construction and mining machinery	24.2	23.8	23.9	27.5	26.1	21.6	21.1
Metalworking machinery	30.9	31.5	35.9	34.1	34.7	34.7	33.9
Special industrial machinery	25.9	27.0	25.3	27.8	29.4	30.2	29.2
General industrial machinery	32.8	38.2	38.4	39.7	36.3	37.7	38.7
Computer and office equipment	C	C	C	C	B	21.2	43.6
Other industrial machinery and equipment	21.4	25.6	30.6	24.1	23.5	24.4	25.0
Audio, video, and communications, equipment	23.8	27.3	26.7	24.8	28.1	26.5	24.2
Electronic components and accessories	29.5	28.6	25.3	29.4	31.9	27.2	25.8
Household appliances and other electrical machinery	29.3	28.7	28.5	30.2	29.3	27.5	27.2
Motor vehicles and equipment	15.8	13.1	14.5	17.2	16.9	16.5	17.0
Other transportation equipment	25.3	30.2	32.1	27.3	31.5	28.9	25.5
Instruments and related products	35.0	36.3	36.8	40.1	41.6	40.9	39.6
Imports as a percentage of intermediate inputs:							
Construction and mining machinery	35.9	29.9	29.3	23.2	29.8	30.5	37.6
Metalworking machinery	33.4	26.9	29.5	28.6	29.6	29.9	29.8
Special industrial machinery	19.3	19.7	17.4	21.5	19.3	20.4	21.4
General industrial machinery	25.3	24.0	23.5	22.6	19.3	18.3	22.4
Computer and office equipment	E	F	F	F	E	50.5	44.3
Other industrial machinery and equipment	17.9	20.2	24.2	41.5	22.2	32.1	32.6
Audio, video, and communications, equipment	49.6	47.9	48.0	37.5	45.1	42.2	42.1
Electronic components and accessories	53.1	43.4	37.9	44.1	41.3	34.7	34.4
Household appliances and other electrical machinery	30.1	25.0	27.2	26.6	26.3	27.7	27.1
Motor vehicles and equipment	53.8	51.5	47.2	50.1	39.4	37.3	34.5
Other transportation equipment	39.8	30.7	28.1	24.3	24.9	29.7	31.7
Instruments and related products	19.6	17.2	16.2	13.8	14.2	14.9	15.3
Exports as a percentage of sales:							
Construction and mining machinery	9.3	13.6	13.1	17.0	15.6	21.8	21.4
Metalworking machinery	4.4	9.4	11.2	12.2	11.4	10.8	10.8
Special industrial machinery	16.3	12.6	16.1	19.5	19.2	18.7	14.5
General industrial machinery	3.6	5.8	7.0	6.1	5.3	4.8	8.7
Computer and office equipment	A	B	22.0	21.8	18.5	18.5	21.2
Other industrial machinery and equipment	6.7	6.9	10.3	10.9	10.4	10.1	10.1
Audio, video, and communications, equipment	28.3	27.3	24.6	8.7	9.4	9.1	15.0
Electronic components and accessories	8.3	12.5	16.7	17.8	17.6	14.0	14.1
Household appliances and other electrical machinery	11.6	11.5	15.1	17.4	13.3	20.0	16.1
Motor vehicles and equipment	4.3	3.2	3.6	5.4	8.4	6.0	5.3
Other transportation equipment	13.7	23.0	16.0	13.4	18.4	17.3	15.4
Instruments and related products	7.2	8.9	11.0	12.7	13.5	14.6	15.2
Addendum:							
Multilateral trade-weighted value of the U.S. dollar, adjusted by changes in consumer prices (March 1973 = 100)[1]	88.2	94.4	86.0	86.5	83.4	90.0	88.7

1. *Economic Report of the President* (Washington, DC: U.S. Government Printing Office, February 1997): Table B-108.

NOTES.—Industry-level measures were constructed from data for a fixed panel of affiliates classified in the industry in 1994; the panel consists of affiliates that existed in 1987 and were fully operational in each of the years 1988–94.

Size ranges are given in the percentage cells that are suppressed; these ranges are A—0.01 to 19.9; B—20.0 to 39.9; C—40.0 to 59.9; E—60.0 to 79.9; F—80.0 to 100.

ing; in 1994, the manufacturing affiliates of these countries accounted for about 80 percent of both the value added and the gross output of all U.S. manufacturing affiliates.

Comparisons among the investing countries' affiliates are made in terms of mean values of affiliate-level measures "normalized" by industry; to normalize, each measure for a given affiliate was divided by the corresponding industry-level measure for domestically owned U.S. parent companies in the affiliate's industry.

The mean values for samples of affiliates of each country for 1989 and 1994 are shown in tables 9.1 and 9.2, respectively. The samples of affiliates consist of the affiliates in all the manufacturing industries and the affiliates in two industry subgroups: Machinery-type industries and all the other manufacturing industries.[28]

A mean value of 1 indicates that the measure for affiliates, on average, equals that for the domestically owned companies in comparable industries.[29] For affiliates of each investing country, a *t* test was performed to determine if the mean is significantly different from 1, which would indicate that the measure for affiliates differs systematically from the measure for the domestically owned companies.

Content of output

In 1994, German-, Swiss-, and Japanese-owned affiliates show the lowest average domestic content in relation to domestically owned companies in comparable industries. For German- and Swiss-owned affiliates, the mean value for

28. Each sample consists of all the manufacturing affiliates that had at least $5 million in sales. Smaller affiliates were excluded to prevent the averages from being skewed by the presence of large outliers that may result when the denominator (total output, purchased inputs, or sales) in the measure for an affiliate is very small. The extreme measures for some small affiliates may reflect the start-up or shutdown of affiliate operations in the year for which the measures are constructed.

29. In interpreting the figures in tables 9.1 and 9.2, it should be noted that the all-country averages for the normalized measures are conceptually different from the aggregate ratios shown in tables 2–4 and 6, because in those tables, the numerator of each ratio is the industry-level measure for the affiliates and is constructed by aggregating the data for all the affiliates in the industry. In contrast, the figures in tables 9.1 and 9.2 are unweighted averages (across the sample of affiliates) of the affiliate-level measures relative to the industry-level measures for U.S. parent companies in corresponding industries.

Table 9.1.—Means of Normalized Measures for U.S. Affiliates, by Country of UBO, 1989

[Standard deviations in parentheses]

	All countries	Canada	France	Germany	Switzerland	United Kingdom	Japan	Other countries
Domestic content as a percentage of gross output:								
All industries	0.88 (.27)	0.92 (.19)	0.89 (.21)	0.84 (.21)	0.87 (.19)	0.96 (.15)	0.81 (.45)	0.88 (.21)
Machinery-type industries	.84 (.28)	.97[a] (.19)	.83 (.27)	.80 (.23)	.82 (.25)	.96 (.18)	.75 (.40)	.83 (.26)
Other industries	.90 (.25)	.91 (.18)	.91 (.17)	.88 (.18)	.91 (.15)	.97 (.12)	.84 (.49)	.90 (.18)
Value added as a percentage of gross output:								
All industries	.72 (.52)	.76 (.38)	.70 (.38)	.72 (.42)	.76 (.36)	.83 (.37)	.66 (.62)	.68 (.68)
Machinery-type industries	.66 (.62)	.78 (.36)	.57 (.35)	.69 (.38)	.81 (.40)	.82 (.37)	.51 (.54)	.57 (1.05)
Other industries	.76 (.45)	.76 (.39)	.75 (.38)	.75 (.44)	.74 (.33)	.84 (.37)	.76 (.66)	.72 (.40)
Imports as a percentage of intermediate inputs:								
All industries	4.43 (9.80)	4.70 (9.47)	5.25 (8.93)	5.04 (7.00)	4.34 (5.42)	2.18 (3.82)	4.66 (15.87)	4.88 (9.25)
Machinery-type industries	3.51 (4.79)	2.00[a] (3.71)	4.71 (6.29)	4.62 (4.90)	3.82 (3.68)	1.66 (2.31)	3.73 (5.36)	3.99 (5.39)
Other industries	4.98 (11.81)	5.67 (10.66)	5.47 (9.85)	5.39 (8.36)	4.63 (6.20)	2.62 (4.71)	5.33 (20.34)	5.29 (10.55)
Exports as a percentage of total sales:								
All industries	1.18 (3.10)	.77[a] (1.88)	1.36[a] (2.34)	.96[a] (1.57)	.81[a] (1.20)	.93[a] (2.22)	1.73 (4.30)	1.30[a] (4.09)
Machinery-type industries	.73 (.96)	.53 (.77)	1.16[a] (1.70)	.66 (.82)	.76[a] (.81)	.78 (1.01)	.64 (.96)	.78 (.85)
Other industries	1.45 (3.83)	.86[a] (2.14)	1.44[a] (2.57)	1.21[a] (1.96)	.84[a] (1.37)	1.07[a] (2.88)	2.53 (5.46)	1.55[a] (4.89)
Addenda: Number of affiliates:								
All industries	1,441	163	99	253	89	220	264	353
Machinery-type industries	543	43	29	115	32	101	111	112
Other industries	898	120	70	138	57	119	153	241

[a] Not statistically different from 1 at the 95-percent confidence level.

NOTES.—To normalize, the measure of content calculated for each affiliate was divided by the corresponding aggregate measure for domestically owned U.S. parent companies classified in the affiliate's industry.

The sample consists of all manufacturing affiliates that existed in both 1988 and 1989 and had at least $5 million in sales in 1989.

UBO Ultimate beneficial owner

all manufacturing industries is 0.88, indicating that their domestic content averages 12 percent less than that of domestically owned companies in comparable industries (table 9.2). For Japanese-owned affiliates, the domestic content averages 11 percent less than that for domestically owned companies. In machinery-type industries, the domestic content for German-, Swiss-, and Japanese-owned affiliates averages 15–17 percent less than that for domestically owned companies.

The relatively low domestic content for German- and Swiss-owned affiliates reflects a relatively high reliance on foreign sources for their intermediate inputs; the import shares of their purchased inputs average almost four times that of the domestically owned companies.[30] For Japanese-owned affiliates, the relatively low domestic content reflects a relatively low share of value added in gross output (averaging two-thirds of the share for domestically owned companies) as well as a high import share of purchased intermediate inputs. The relatively low value-added share for Japanese-owned affiliates (particularly in machinery-type industries) is consistent with established patterns of organizing production in Japan, where manufacturing companies tend to rely heavily on subcontracting.[31]

The average domestic content of Japanese-owned affiliates is substantially higher in 1994 than in 1989. In 1989, Japanese-owned affiliates show the lowest domestic content among the six investing countries, averaging 81 percent of that of domestically owned companies in all industries and 75 percent of that of domestically owned companies in machinery-type industries (table 9.1). In machinery-type industries, the low domestic content partly reflects a lower share of value added in the total output of Japanese-owned affiliates (averaging only one-half of the share for domestically owned companies). In all industries, the import share of intermedi-

30. As shown in the appendix, the high import share for Swiss-owned affiliates partly reflects substantial imports of goods for resale without further manufacture by the affiliates.

31. See, for example, Masahiko Aoki, "Toward an Economic Model of the Japanese Firm," *Journal of Economic Literature* 28 (March 1990): 1–27.

Table 9.2.—Means of Normalized Measures for U.S. Affiliates, by Country of UBO, 1994

[Standard deviations in parentheses]

	All countries	Canada	France	Germany	Switzerland	United Kingdom	Japan	Other countries
Domestic content as a percentage of gross output:								
All industries	0.91 (.20)	0.93 (.19)	0.91 (.19)	0.88 (.20)	0.88 (.18)	0.96 (.16)	0.89 (.23)	0.90 (.20)
Machinery-type industries	.88 (.24)	.99[a] (.19)	.90 (.23)	.85 (.20)	.83 (.21)	.97[a] (.20)	.84 (.26)	.90 (.24)
Other industries	.92 (.18)	.92 (.19)	.92 (.16)	.91 (.18)	.91 (.16)	.96 (.13)	.93 (.19)	.91 (.18)
Value added as a percentage of gross output:								
All industries	.74 (.53)	.75 (.49)	.77 (.62)	.78 (.39)	.83 (.44)	.83 (.44)	.67 (.62)	.71 (.52)
Machinery-type industries	.71 (.57)	.79 (.61)	.65 (.74)	.75 (.39)	.78 (.42)	.82 (.42)	.61 (.74)	.71 (.41)
Other industries	.76 (.50)	.74 (.45)	.83 (.54)	.82 (.39)	.85 (.45)	.84 (.46)	.72 (.52)	.71 (.56)
Imports as a percentage of intermediate inputs:								
All industries	3.20 (5.83)	3.46 (7.36)	3.01 (5.68)	3.86 (6.02)	3.88 (5.29)	2.01 (3.93)	2.98 (5.75)	3.49 (5.98)
Machinery-type industries	2.40 (3.05)	1.44[a] (2.97)	1.96 (2.90)	3.15 (3.29)	3.40 (3.52)	1.41[a] (2.34)	2.51 (2.92)	2.36 (3.13)
Other industries	3.68 (6.93)	4.06 (8.13)	3.52 (6.59)	4.51 (7.68)	4.15 (6.05)	2.39 (4.63)	3.31 (7.06)	4.07 (6.94)
Exports as a percentage of total sales:								
All industries	1.04[a] (2.01)	.99[a] (1.84)	1.06[a] (1.39)	.94[a] (1.46)	.91[a] (1.19)	.82 (1.43)	1.18 (2.08)	1.09[a] (2.73)
Machinery-type industries	0.87 (1.03)	0.85[a] (1.20)	1.02[a] (1.10)	0.80 (.89)	0.76 (.73)	0.68 (.68)	0.83 (1.04)	1.08[a] (1.24)
Other industries	1.15 (2.41)	1.03[a] (2.00)	1.08[a] (1.51)	1.07[a] (1.83)	0.99[a] (1.38)	0.91[a] (1.74)	1.43 (2.53)	1.10[a] (3.24)
Addenda: Number of affiliates:								
All industries	2,236	219	157	323	116	272	627	522
Machinery-type industries	836	50	52	155	41	105	256	177
Other industries	1,400	169	105	168	75	167	371	345

[a] Not statistically different from 1 at the 95-percent confidence level.

NOTES.—To normalize, the measure of content calculated for each affiliate was divided by the corresponding aggregate measure for domestically owned U.S. parent companies classified in the affiliate's industry.

The sample consists of all manufacturing affiliates that existed in both 1993 and 1994 and had at least $5 million in sales in 1994.

UBO Ultimate beneficial owner

ate inputs is much higher in 1989 (averaging more than four times that of domestically owned companies) than in 1994.

In both 1989 and 1994, British-owned affiliates had the highest share of domestic content (in 1994, it averaged 96 percent of that for domestically owned companies), the highest value-added share (83 percent of the share for the domestically owned companies), and the lowest import share of intermediate inputs (but twice that of the domestically owned companies). In 1994, both the domestic content and the import share of purchased inputs for British-owned affiliates in machinery-type industries are barely distinguishable from those for domestically owned companies. This similarity may reflect the fact that British direct investment in U.S. manufacturing industries tends to be older and has almost exclusively been to acquire existing U.S. companies.[32]

Canadian-owned affiliates in machinery-type industries also show a high share of domestic content and a low share of imports in intermediate inputs; in 1994, both measures were similar to those for domestically owned companies.[33] However, for Canadian-owned affiliates in other manufacturing industries, the domestic-content share is relatively low (averaging 92 percent of that for domestically owned companies in 1994) and the import share of intermediate inputs is very high (averaging more than four times that of domestically owned companies). The high import share may be related to the relatively low costs of shipping bulk materials (which serve as intermediate inputs in many of these industries) from Canadian parent companies to their U.S. affiliates due to Canada's proximity to the United States.

Market for output

For most of the major investing countries, the average export shares of sales for affiliates in all industries do not differ significantly from the export shares for the domestically owned companies. Japanese-owned affiliates stand out as having high average export shares of sales in relation to those of domestically owned companies (averaging 18 percent higher in 1994), particularly in industries other than machinery-type industries (43 percent higher), in which the export shares for both the domestically owned companies and affiliates are generally low. Among specific industries, the export shares for Japanese-owned affiliates average more than eight times the aggregate share for domestically owned companies in lumber and wood products and more than three times the aggregate share for the domestically owned companies in other food and kindred products. In other food and kindred products, exports on average account for more than one-fourth of the sales of Japanese-owned affiliates, reflecting very high export shares for affiliates specializing in seafood products, meat products, and preserved fruits and vegetables. The relatively high export activity in these industries suggests that some Japanese investments in the United States are aimed at obtaining access to primary resources in which the United States is relatively abundant (with some processing taking place in the United States in order to reduce transportation and other costs) rather than at increasing sales to the U.S. market.

In machinery-type industries, Japanese-owned affiliates, together with German-, Swiss- and British-owned affiliates, on average, have substantially lower export shares than domestically owned companies, indicating that their production in these industries is much more oriented toward the domestic market.

Geographic Pattern of International Purchases and Sales

This section examines differences in the geographic pattern of international purchases and of sales by manufacturing affiliates in 1992, on the basis of data collected in the 1992 benchmark survey of foreign direct investment in the United States.

Aggregate figures on the geographic origin of intermediate inputs purchased from abroad by U.S. manufacturing affiliates of the six major investing countries show considerable diversity in the reliance on the investing country for imported intermediate inputs. Imports from the ultimate beneficial owner (UBO) country account for almost 90 percent of the imported inputs of Japanese-owned affiliates and for about three-fourths of the imported inputs of German- and Swiss-owned affiliates (table 10). In contrast, imports from the investing country account for only one-third of the inputs imported by

32. Outlays to acquire existing U.S. businesses accounted for 96 percent of the total outlays by British direct investors to acquire or establish U.S. manufacturing enterprises in 1987–92, according to data from BEA's survey of new investment; in comparison, 86 percent of total outlays by Japanese direct investors and 92 percent of total outlays by direct investors from all countries were to acquire existing U.S. businesses.

33. The relatively high domestic content for these Canadian-owned affiliates may also reflect the fact that Canadian direct investment has mainly been to acquire existing U.S. companies: Outlays to acquire existing U.S. businesses accounted for 97 percent of the total outlays by Canadian direct investors in 1987–92.

Table 10.—Geographic Origin of Imports by Manufacturing Affiliates of Selected UBO Countries, 1992

[Percentage of imports from all countries]

Country of origin	Country of UBO					
	Canada	France	Germany	Switzerland	United Kingdom	Japan
All Industries						
All countries	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Canada	66.6	12.9	6.4	3.4	7.0	2.1
Europe	11.9	50.9	85.7	87.6	68.6	1.6
France	A	34.3	.9	3.2	4.3	.2
Germany	1.3	2.4	78.6	3.8	2.8	.3
Switzerland	.2	.1	.3	76.3	A	(*)
United Kingdom	4.1	1.5	.9	1.2	39.4	.2
Other	A	12.6	5.0	3.1	A	.9
Latin America and Other Western Hemisphere	12.0	11.8	2.7	3.6	8.3	3.0
Mexico	A	8.7	1.5	A	1.0	2.5
Other	A	3.0	1.2	A	7.3	.5
Africa	A	1.9	(*)	A	2.1	(*)
Middle East	0	0	(*)	0	0	(*)
Asia and Pacific	7.7	22.2	3.4	4.4	13.0	90.8
Japan	A	4.9	2.3	2.5	2.5	86.6
Other	A	17.3	1.1	1.9	10.5	4.2
Unallocated	A	.3	1.7	A	1.0	2.4
Machinery-type Industries						
All countries	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Canada	92.1	6.7	1.4	.3	9.2	.5
Europe	1.2	35.1	90.3	92.2	58.2	1.2
France	(*)	24.3	.6	(*)	1.1	A
Germany	A	1.6	85.9	9.1	5.0	.2
Switzerland	0	0	.1	78.1	A	(*)
United Kingdom	A	1.0	A	1.1	44.5	A
Other	.5	8.3	A	3.9	A	.8
Latin America and Other Western Hemisphere	0	A	1.1	A	1.1	3.0
Mexico	0	A	.5	(*)	1.0	3.0
Other	0	A	.6	A	.2	.1
Africa	0	0	(*)	0	0	0
Middle East	0	0	0	0	0	0
Asia and Pacific	A	44.9	3.8	7.0	30.5	92.6
Japan	A	9.6	3.1	1.9	8.0	88.7
Other	A	35.3	.8	5.2	22.5	3.9
Unallocated	A	A	3.4	A	1.0	2.7
Other Industries						
All countries	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Canada	59.7	17.6	10.0	4.5	6.5	10.4
Europe	14.7	63.0	82.4	86.0	71.3	4.0
France	A	42.0	1.1	4.3	5.1	A
Germany	A	3.0	73.3	1.9	2.2	1.1
Switzerland	.3	.2	.5	75.7	A	0
United Kingdom	A	1.9	A	1.3	38.1	A
Other	A	15.8	A	2.9	A	.9
Latin America and Other Western Hemisphere	15.2	A	3.9	A	10.2	3.0
Mexico	A	A	2.2	A	1.0	.4
Other	A	A	1.7	A	9.2	2.7
Africa	A	3.4	A	A	2.6	A
Middle East	0	0	A	0	0	A
Asia and Pacific	A	4.9	3.1	3.4	8.4	81.7
Japan	A	1.4	1.8	2.7	1.0	75.7
Other	A	3.5	1.4	.7	7.4	6.0
Unallocated	A	A	.5	1.1	1.1	.6

* Less than 0.05 percent.

NOTE.—Size ranges are given in the percentage cells that are suppressed; these ranges are A—0.01 to 19.9; B—20.0 to 39.9; C—40.0 to 59.9; E—60.0 to 79.9; F—80.0 to 100.

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Table 11.—Geographic Destination of Exports by Manufacturing Affiliates of Selected UBO Countries, 1992

[Percentage of exports to all countries]

Country of destination	Country of UBO					
	Canada	France	Germany	Switzerland	United Kingdom	Japan
All industries						
All countries	100.0	100.0	100.0	100.0	100.0	100.0
Canada	30.8	23.4	20.6	16.6	16.9	16.4
Europe	27.5	37.3	38.6	46.0	38.2	17.7
France	3.1	21.3	2.0	2.5	3.4	2.1
Germany	3.6	4.8	24.5	4.5	4.9	4.0
Switzerland	A	.6	.4	26.8	.9	.4
United Kingdom	4.4	3.2	2.3	3.5	18.4	4.2
Other	A	7.3	9.4	8.6	10.6	7.0
Latin America and Other Western Hemisphere	13.1	10.8	8.8	9.0	7.7	8.8
Mexico	4.8	6.8	4.8	3.6	3.8	5.9
Other	8.4	4.0	4.1	5.4	3.9	2.9
Africa	.5	.6	.8	4.0	.6	.7
Middle East	.8	.8	.6	2.3	3.5	.4
Asia and Pacific	25.7	21.6	25.8	17.6	24.9	52.1
Japan	10.2	9.5	6.4	3.9	11.0	38.4
Other	15.6	12.1	19.4	13.7	13.8	13.6
Unallocated	1.6	5.6	4.8	4.5	8.1	4.0
Machinery-type industries						
All countries	100.0	100.0	100.0	100.0	100.0	100.0
Canada	49.8	18.8	18.9	13.8	16.7	17.8
Europe	13.3	37.6	52.6	32.5	43.4	18.1
France	2.8	29.3	4.2	2.1	4.0	1.8
Germany	1.2	1.1	41.7	5.1	7.0	3.4
Switzerland	A	.2	.2	12.3	.1	A
United Kingdom	4.6	2.3	1.9	4.7	24.8	4.8
Other	A	4.8	4.5	8.3	7.5	A
Latin America and Other Western Hemisphere	17.6	14.4	7.4	8.2	7.3	11.1
Mexico	8.0	8.0	4.8	4.7	4.3	7.8
Other	9.6	6.4	2.6	3.5	2.9	3.3
Africa	A	.7	.1	7.9	.7	.9
Middle East	A	.9	.4	A	1.1	.3
Asia and Pacific	17.3	22.8	16.2	29.4	17.5	46.9
Japan	A	10.7	4.4	4.8	5.4	29.4
Other	A	12.1	11.8	24.7	12.1	17.5
Unallocated	1.8	4.8	4.4	A	13.5	4.7
Affiliates in other manufacturing industries						
All countries	100.0	100.0	100.0	100.0	100.0	100.0
Canada	26.3	26.7	21.4	19.1	17.1	14.4
Europe	30.8	37.1	32.0	58.0	35.4	17.1
France	3.1	15.7	.9	2.9	3.2	2.4
Germany	4.2	7.5	16.3	4.1	3.8	4.7
Switzerland	A	1.0	.5	39.8	1.3	A
United Kingdom	4.3	3.8	2.5	2.4	14.8	3.5
Other	A	9.2	11.7	8.9	12.4	A
Latin America and Other Western Hemisphere	12.1	8.2	9.5	9.7	8.0	5.6
Mexico	4.0	5.8	4.7	2.6	3.5	3.4
Other	8.1	2.3	4.7	7.1	4.5	2.3
Africa	A	.6	1.2	.6	.6	.3
Middle East	A	.7	.7	A	4.9	.5
Asia and Pacific	27.7	20.8	30.3	7.0	29.0	59.1
Japan	A	8.6	7.3	3.1	14.2	50.7
Other	A	12.2	23.0	3.9	4.1	8.4
Unallocated	1.6	6.1	4.9	A	5.1	2.9

NOTE.—Size ranges are given in the percentage cells that are suppressed; these ranges are A—0.01 to 19.9; B—20.0 to 39.9; C—40.0 to 59.9; E—60.0 to 79.9; F—80.0 to 100.
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French- and British-owned affiliates. In machinery-type industries, French- and British-owned affiliates purchase a substantial share of their imported inputs from the developing and newly industrializing countries of East Asia. For affiliates in all six countries, more than 80 percent of the imports from the investing country are intrafirm imports from the affiliates' foreign parent groups.[34]

The destinations of foreign sales by U.S. manufacturing affiliates of the six countries are less geographically concentrated than the origins of affiliate imports. In most cases, exports to the investing country account for 20–30 percent of all affiliate exports (table 11). The investing-country share is largest for Japanese-owned affiliates (38 percent); exports to Japan account for one-half of the exports by Japanese-owned affiliates in industries other than machinery-type industries. In machinery-type industries, the share of exports to the investing country is largest for German-owned affiliates (42 percent).

Appendix

Data used to construct measures

The measures of domestic content and market orientation that are examined in this article are based on BEA's data for U.S. affiliates of foreign companies and U.S. parent companies of foreign affiliates. For analytical purposes, adjustments have been made to these data; hence their presentation in this article differs in a number of ways from the standard presentation in BEA publications.

The data used to construct the measures of content and market orientation for U.S. manufacturing affiliates are from BEA's benchmark and annual surveys of foreign direct investment in the United States. These data are collected at the enterprise level from reports by fully consolidated enterprises. All of the data for an affiliate are assigned to the affiliate's "primary" industry—the industry in which it has the most sales—even though the affiliate may have production and sales in more than one industry. As a result, data for a given manufacturing industry may include some data for secondary activities in other industries.[35]

The data used to construct the four measures for domestically owned U.S. parent companies are from BEA's benchmark surveys of U.S. direct investment abroad for 1989 and 1994. Because some U.S. parent companies are also U.S. affiliates of foreign companies, the data on U.S. parent companies have been adjusted to exclude U.S. parents that are foreign owned. (In 1994, foreign-owned U.S. parents accounted for 12 percent of the gross output of all U.S. parent companies in manufacturing.)

Domestically owned U.S. parent companies in manufacturing are used in the comparisons for four reasons. First, these companies are very similar to U.S. affiliates because of their international orientation and typically large size. Second, both the data for these companies and those for U.S. affiliates are collected at the enterprise level, using the same survey methods and the same procedures for industry classification.[36] Third, the data covering U.S. parent companies provide the only directly collected industry-level data on the imported intermediate inputs used by domestically owned U.S. companies.[37] Fourth, domestically owned U.S. parent companies in manufacturing can be viewed as representative of U.S. manufacturing companies insofar as they account for a large share—more than one-half—of the gross output of all domestically owned U.S. companies in manufacturing.[38]

The industry-level measures for U.S. affiliates and domestically owned U.S. parent companies were constructed for 32 detailed manufacturing

34. However, imports from the investing country do not account for a uniformly large share of the affiliates' imports from their foreign parent groups: Only 56 percent of the intrafirm imports by British-owned affiliates originate in the United Kingdom and only 69 percent of the intrafirm imports by French-owned affiliates originate in France.

35. The data on affiliate sales can be broken down by each industry in which the given affiliate reports sales. In 1994, manufacturing sales accounted for 85 percent of the total sales of affiliates classified in manufacturing; about 7 percent of their sales were accounted for by sales in wholesale trade.

36. Like the data for U.S. manufacturing affiliates, the data for U.S. parent companies classified in manufacturing include some data related to the companies' secondary activities in nonmanufacturing industries: In 1994, nonmanufacturing sales accounted for 15 percent of the total sales of U.S. parent companies in manufacturing.

37. Some researchers have constructed indirect estimates of imported inputs used in U.S. manufacturing industries by combining input-output data with data on imports classified by the industries producing the imported goods. These estimates are based on the assumption that the share of imports in the goods supplied by an industry is identical for all industries using the supplying industry's goods as intermediate inputs.

38. In 1994, domestically owned U.S. parent companies in manufacturing accounted for 56 percent of the gross output of all domestically owned companies in manufacturing. To compute this share, the gross output of U.S. corporations in manufacturing was computed from data in *1994 Corporation Source Book of Statistics of Income* from the Internal Revenue Service (IRS); the gross output of domestically owned U.S. manufacturing companies was derived by subtracting the gross output of U.S. manufacturing affiliates from the gross output of U.S. corporations in manufacturing. (This share may be understated because of potential double-counting in the IRS data due to less than fully consolidated reporting by some U.S. corporations.)

Of the 32 manufacturing industries in table 2, domestically owned U.S. parent companies accounted for more than one-half of the gross output of all domestically owned companies in 17 industries, including 8 of the 12 machinery-type industries. The shares were less than 20 percent in the lumber and wood products, fabricated metal products, and other manufacturing industries. (Because the level of consolidation for company reports to the IRS may differ from that required in BEA's surveys of direct investment, these shares by detailed industry are approximate.)

industries (tables 2–7); this presentation is more detailed than the industry presentation in BEA's standard tables for either U.S. affiliates or U.S. parent companies.[39] Specifically, the industries are disaggregated to represent the production stages or processes in an industry group; for example, lumber and wood products is separated from furniture and fixtures. In addition, more detail is shown for industries that are usually grouped in "other industrial machinery and equipment."

For *industry-level results*, the data used to construct the measures for the manufacturing affiliates in 1994 are restricted to affiliates that also existed in 1993, so that the change-in-inventories component of gross output could be computed from reported data on inventory levels. This group of affiliates accounts for 98 percent of the gross product and sales of manufacturing affiliates in the universe in 1994. Similarly, the data used to construct the measures for affiliates in 1989 are restricted to those for affiliates that also existed in 1988. For domestically owned U.S. parent companies, the change-in-inventories component of total output was estimated (table 1), because data on U.S.-parent-company inventories are collected only in benchmark survey years.

For *changes in behavior over time*, panel data for affiliates classified in machinery-type industries are used in order to isolate changes in affiliate behavior from changes in the population of affiliates. The panel consists of 371 affiliates that were classified in machinery-type industries in 1994 and that existed in each of the years 1987–94.[40] The panel affiliates accounted for only about one-third of the 1,110 affiliates that were classified in machinery-type industries in 1994, but they accounted for 69 percent of the gross output of all affiliates in those industries in 1994; in 9 of the 12 industries, they accounted for more than one-half of the gross output (table 12).[41] The panel data include data for inventories for 1987 and data for each of the items needed to compute the measures of content and market orientation for 1988–94. Aggregating the data for affiliates in the panel, the four measures were computed at the industry level for each of the years 1988–94.

Table 12.—Gross Output of Affiliates in the Panel as a Percentage of Gross Output of All Affiliates in the Industry, Machinery-Type Industries, 1994

Construction and mining machinery	58.6
Metalworking machinery	45.8
Special industrial machinery	56.0
General industrial machinery	85.3
Computer and office equipment	15.4
Other industrial machinery and equipment	43.0
Audio and video, and communications, equipment	92.6
Electronic components and accessories	65.6
Household appliances and other electrical machinery	76.8
Motor vehicles and equipment	72.5
Other transportation equipment	59.2
Instruments and related products	76.4

For *comparisons by country of ownership*, the four measures for 1989 and 1994 were constructed at the affiliate level for affiliates that also existed the previous year (so that the change-in-inventories component of affiliate gross output could be computed). To control for industry-mix effects in the comparisons, the affiliate-level measures were normalized by dividing the measure for each affiliate by the corresponding industry-level measure for domestically owned U.S. parent companies in the affiliate's industry. The comparisons are made in terms of unweighted averages of the normalized measures across samples of affiliates. The samples are restricted to manufacturing affiliates that had at least $5 million in sales in order to prevent the averages from being skewed by the presence of large outliers that may result when the denominator (total output, purchased inputs, or sales) in the measure for an affiliate is very small.

Intended use of imports by U.S. affiliates

The results reported for U.S. affiliates—particularly the import share of their intermediate inputs—may be biased by the inclusion of imports that are unrelated to their manufacturing production. Some affiliates classified in manufacturing may have substantial imports of goods for resale without further manufacture as a result of their secondary operations in wholesale trade.

The degree of this bias can be examined using BEA's data on U.S. affiliate operations in 1994, which provide information on the intended use of affiliate imports. Specifically, the data include the value of that portion of affiliate imports that consists of the goods intended for further processing, assembly, or manufacture by the affiliate (in contrast to goods intended for resale without

39. For examples of the standard level of detail, see tables 19.1 and 19.2 in "Foreign Direct Investment in the United States: New Investment in 1996 and Affiliate Operations in 1995," and tables 17.1 and 17.2 in "U.S. Multinational Companies: Operations in 1995," SURVEY 77 (October 1997). For the most detailed presentation, see table A–1 in *Foreign Direct Investment in the United States: Operations of U.S. Affiliates of Foreign Companies, Revised 1994 Estimates* (Washington, DC: U.S. Government Printing Office, June 1997).

40. The panel is based on the industry classification of the affiliates in 1994; however, some of the affiliates that were classified in a given industry in 1994 may have been classified in other industries in other years covered by the panel.

41. However, the affiliates in the panel accounted for only 15 percent of the total output of affiliates in computer and office equipment, so the behavior of the affiliates in the panel may not be generalized to that of all affiliates in this industry.

further manufacture or to capital goods intended as additions to the affiliate's capital stock).[42]

In 1994, imports of goods for further manufacture accounted for 53 percent of the total imports of the affiliates in manufacturing (table 13, column 3). The shares of affiliate imports accounted for by goods intended for further manufacture were less than 50 percent in one-half of the 32 industries and were less than 30 percent in five of them—beverages, rubber products, glass products, household appliances and other electrical equipment, and instruments.

The degree of bias that is introduced by the inclusion of these imports can be assessed by reconstructing the measure for a restricted sample of affiliates for whom goods intended for further manufacture account for at least 50 percent of imports. Table 13 shows the industry-level import-share measures for this restricted sample of affiliates (column 4) in comparison with the measures for all manufacturing affiliates (column 1); the last two columns show the ratios of these measures to the corresponding measure for domestically owned U.S. parent companies.[43]

In most industries, the import shares for the full and restricted samples of affiliates are very similar, both in absolute terms and relative to the measures for the domestically owned companies. In a few industries, however, the import-share measures are substantially lower for affiliates in

42. Data on imports intended for further manufacture have been collected annually beginning with the 1992 benchmark survey. The benchmark-survey data also include separate data on imports of goods for resale without further manufacture and on imports of capital equipment; in 1992, imports for resale accounted for 95 percent of manufacturing affiliates' imports of goods that were not intended for further manufacture.

43. For most of the affiliates in the restricted sample, the shares of imports accounted for by goods intended for further manufacture are much higher than 50 percent. As shown in column 6 of table 13, imports for further manufacture accounted for 88 percent of the total imports of affiliates in the restricted sample; at the industry level, the shares in two-thirds of the 32 industries are more than 90 percent.

Table 13.—Import-Share Measures for Full and Restricted Samples of U.S. Manufacturing Affiliates, by Industry, 1994

	Full sample			Restricted sample [1]			Addenda:	
	Imports as a percentage of intermediate inputs	Imports of goods for further manufacture as a percentage of intermediate inputs	Imports of goods for further manufacture as a percentage of total imports	Imports as a percentage of intermediate inputs	Imports of goods for further manufacture as a percentage of intermediate inputs	Imports of goods for further manufacture as a percentage of total imports	Imports as a percentage of intermediate inputs: Ratio of measure for U.S. affiliates to measure for U.S. parent companies [2]	
							Full sample	Restricted sample
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Manufacturing [3]	18.7	10.0	53.3	17.2	15.2	88.0	1.65	1.52
Beverages	15.6	A	A	.2	.2	100.0	6.38	.07
Other food products	7.6	A	C	8.0	7.4	93.3	3.16	3.30
Textile mill products	8.8	4.2	48.5	5.8	5.8	99.0	2.58	1.72
Apparel and other textile products	12.7	9.3	72.9	12.4	10.2	82.4	1.33	1.30
Lumber and wood products	8.3	5.6	67.4	6.3	6.3	100.0	4.92	3.70
Furniture and fixtures	5.6	4.5	80.7	4.9	4.9	100.0	1.60	1.41
Paper and allied products	11.0	7.7	70.3	9.4	8.2	87.2	2.59	2.23
Printing and publishing	2.1	.9	40.6	1.3	1.2	98.6	.90	.53
Industrial chemicals and synthetics	14.8	7.8	52.6	13.0	10.8	83.4	1.65	1.45
Drugs	19.9	10.8	54.5	18.1	15.1	83.2	3.59	3.26
Soap, cleaners, and toilet goods	3.4	1.6	47.6	3.8	3.6	95.8	.71	.80
Other chemicals	17.0	11.4	67.0	22.7	21.9	96.5	6.48	8.66
Rubber products	27.9	5.0	17.8	16.2	14.9	92.2	2.13	1.24
Miscellaneous plastics products	15.5	5.2	33.7	6.5	6.2	95.5	3.99	1.67
Glass products	13.6	3.6	26.4	10.6	10.6	100.0	7.19	5.60
Stone, clay, and concrete products	7.7	3.5	45.2	5.6	4.7	82.8	2.27	1.67
Primary ferrous metals	14.8	8.9	60.1	15.7	15.2	97.1	2.05	2.17
Primary nonferrous metals	21.9	14.0	64.2	23.0	16.3	71.2	2.50	2.62
Fabricated metal products	12.5	4.0	31.9	8.5	6.3	74.4	3.40	2.30
Construction and mining machinery	37.1	19.5	52.7	34.9	26.7	76.5	2.23	2.10
Metalworking machinery	25.5	12.4	48.8	22.2	22.2	100.0	3.88	3.39
Special industrial machinery	24.1	18.0	74.6	27.6	25.8	93.4	4.34	4.98
General industrial machinery	20.7	9.5	46.0	14.7	11.4	78.1	1.13	.80
Computer and office equipment	39.6	22.8	57.6	43.3	33.0	76.3	1.29	1.41
Other industrial machinery and equipment	23.2	10.6	45.9	17.3	16.6	95.9	2.66	1.98
Audio, video, and communications equipment	41.1	29.2	71.1	45.4	44.1	97.1	3.30	3.64
Electronic components and accessories	29.1	11.8	40.6	21.4	21.3	99.2	2.11	1.55
Household appliances and other electrical machinery	25.4	6.2	24.5	11.6	11.5	99.5	4.43	2.02
Motor vehicles and equipment	31.8	23.8	74.7	32.2	29.3	91.1	1.32	1.33
Other transportation equipment	22.8	10.6	46.5	15.2	14.6	95.6	3.23	2.16
Instruments and related products	14.9	4.4	29.2	9.3	8.6	91.8	1.31	.82
Other manufacturing	12.9	9.6	74.5	13.1	10.9	83.6	1.49	1.51

1. Restricted to manufacturing affiliates that had at least $5 million in sales and whose imports, if any, consisted mainly of goods intended for further processing, assembly, or manufacture by the affiliate.
2. Import share for the given sample of affiliates divided by the import share for domestically owned U.S. parent companies shown in table 4.
3. See table 2, footnote 1.

NOTE.—Size ranges are given in the percentage cells that are suppressed; these ranges are A—0.01 to 19.9; B—20.0 to 39.9; C—40.0 to 59.9; E—60.0 to 79.9; F—80.0 to 100.

the restricted sample, indicating that the measures for the full sample are biased by the inclusion of imports that are unrelated to manufacturing production. The bias is particularly pronounced in beverages, rubber products, miscellaneous plastics products, and household appliances.

The restricted sample of affiliates was also used to evaluate the degree to which the comparisons by country of ownership in table 9.2 reflect imports unrelated to manufacturing production. Table 14 presents the mean values of the normalized measures for affiliates of each country based on the restricted sample. For the import-share measure, the means shown in table 14 for the restricted sample are generally lower than the means shown in table 9.2 for the full sample; however the overall pattern across countries is very similar. In both tables, German-owned affiliates have very high import shares, and British-owned affiliates have relatively low shares. The rankings among countries in terms of the import shares are also similar for Canadian- and Japanese-owned affiliates. For French- and Swiss-owned affiliates, however, the average import shares are substantially lower in the restricted sample than in the full sample, indicating that the shares in the full sample are inflated by imports unrelated to their manufacturing production.

Table 14.—Means of Normalized Measures for Restricted Sample of Manufacturing Affiliates, by Country of UBO, 1994

[Standard deviations in parentheses]

	All countries	Canada	France	Germany	Switzerland	United Kingdom	Japan	Other countries
Domestic content as a percentage of gross output:								
All industries	0.93 (.21)	0.95 (.19)	0.92 (.21)	0.89 (.22)	0.91 (.18)	0.99[a] (.15)	0.91 (.24)	0.93 (.19)
Machinery-type industries	.90 (.24)	1.03[a] (.12)	.86 (.28)	.85 (.23)	.87 (.21)	1.00[a] (.20)	.85 (.27)	.93 (.22)
Other industries	.94 (.18)	.92 (.20)	.95[a] (.16)	.92 (.20)	.93 (.17)	.98[a] (.12)	.95 (.19)	.94 (.18)
Value added as a percentage of gross output:								
All industries	.73 (.50)	.71 (.51)	.74 (.74)	.77 (.43)	.83 (.51)	.83 (.49)	.68 (.50)	.72 (.47)
Machinery-type industries	.71 (.49)	.80[a] (.69)	.52 (.84)	.73 (.44)	.80[a] (.53)	.84 (.44)	.66 (.41)	.70 (.46)
Other industries	.75 (.51)	.69 (.45)	.85[a] (.66)	.80 (.42)	.84 (.50)	.83 (.52)	.70 (.55)	.72 (.48)
Imports as a percentage of intermediate inputs:								
All industries	2.70 (6.08)	3.12 (8.07)	2.28 (4.26)	3.61 (6.62)	3.10 (5.42)	1.63 (4.05)	2.50 (6.00)	2.84 (6.10)
Machinery-type industries	2.16 (3.02)	.77[a] (1.29)	2.29[a] (3.56)	3.14 (3.75)	2.66 (3.06)	1.13[a] (2.36)	2.27 (2.65)	2.09 (3.20)
Other industries	3.01 (7.24)	3.79 (9.01)	2.27 (4.61)	4.02 (8.35)	3.28 (6.15)	1.92 (4.75)	2.66 (7.49)	3.19 (7.04)
Exports as a percentage of total sales:								
All industries	1.04[a] (1.96)	1.10[a] (2.07)	.97[a] (1.50)	.86[a] (1.59)	.90[a] (1.19)	.77[a] (1.56)	1.25 (2.29)	1.01[a] (2.03)
Machinery-type industries	.87 (1.13)	.97[a] (1.33)	1.05[a] (1.23)	.74 (.90)	.86[a] (.76)	.61 (.71)	.85[a] (1.11)	1.09[a] (1.43)
Other industries	1.13[a] (2.29)	1.14[a] (2.23)	.92[a] (1.63)	.96[a] (2.01)	.91[a] (1.33)	.86[a] (1.89)	1.53 (2.80)	.98[a] (2.26)
Addenda: Number of affiliates:								
All industries	1,436	159	90	194	62	173	419	339
Machinery-type industries	518	35	31	90	18	64	172	108
Other industries	918	124	59	104	44	109	247	231

[a] Not statistically different from 1 at the 95-percent confidence level.

NOTES.—To normalize, the measure of content calculated for each affiliate was divided by the corresponding aggregate measure for U.S. parent companies classified in the industry of the affiliate. The sample is restricted to manufacturing affiliates that had at least $5 million in sales and whose imports, if any, consisted mainly of goods intended for further processing, assembly, or manufacture by the affiliate.

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Merchandise Trade of U.S. Affiliates of Foreign Companies

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U.S. AFFILIATES of foreign companies account for a large share of total U.S. merchandise trade. In 1991, nonbank U.S. affiliates accounted for 23 percent of U.S. merchandise exports and for 37 percent of imports, compared with only 5 percent of the employment and 6 percent of the gross domestic product of all nonbank U.S. businesses. In most recent years, their trade deficit has amounted to more than 50 percent of the total U.S. merchandise trade deficit.

Perhaps because it accounts for such a large share of total U.S. merchandise trade and of the total U.S. merchandise trade deficit, U.S.-affiliate trade has figured prominently in the public dialog on U.S. trade performance and on the economic consequences of foreign direct investment in the United States. Some have expressed concern, for example, that much of this trade may represent imports of parts and components for assembly by foreign-owned plants that are set up in the United States to circumvent trade barriers on finished goods, displacing domestically owned facilities that produce their own components or purchase them from domestic sources.

Examination of the data collected in BEA's annual and benchmark surveys of foreign direct investment in the United States indicates that, although U.S. affiliates in manufacturing do import more than they export, they account for only a small portion—less than one-eighth—of the total affiliate trade deficit. Furthermore, the bulk of the output of these affiliates is composed, not of imports, but of domestic (U.S.) content—that is, content largely attributable to locally obtained labor, capital, and purchased inputs. Most of the deficit for affiliates is accounted for by wholesale trade affiliates rather than manufacturing affiliates. These wholesale trade affiliates have a considerably higher propensity to import, and a correspondingly lower domestic content, than manufacturing affiliates; their primary function typically is to facilitate importation of goods, such as automobiles or consumer electronics, that were manufactured abroad by their foreign parents and that the affiliates resell, with little or no further processing or assembly, to unaffiliated U.S. customers. The overall effect of these wholesale trade affiliates on trade flows is unclear: On the one hand, many of their imports probably would be brought into the country by unaffiliated U.S. wholesalers even in their absence; on the other hand, for some products, such as autos, affiliates allow foreign parent companies to expand their exports to the United States above the levels that otherwise would be possible, by helping to provide services to customers and to obtain information on market conditions in the United States.

This article examines in detail BEA's data on U.S.-affiliate merchandise trade for 1977–91. It compares the merchandise trade of U.S. affiliates with that of all U.S. businesses and analyzes trade patterns by investing country. It also examines the degree to which U.S. affiliates rely on imports as a source of inputs to their U.S. production. The following are highlights from the article:

- Wholesale trade affiliates have consistently accounted for a dominant share of the merchandise exports and imports of U.S. affiliates, and in the past decade they have accounted for more than 70 percent of the affiliate trade deficit. Since the mid-1980's, imports by wholesale trade affiliates have been more than double their exports. (Foreign wholesale trade affiliates of U.S. companies have run similarly large deficits with the United States; in the past decade, their imports from the United States have generally been more than triple their exports to the United States.)
- A large part of the trade deficit of U.S. wholesale trade affiliates is related to imports of motor vehicles. Since 1977, affiliates selling motor vehicles and equipment have accounted for more than one-half of the trade deficit of U.S. wholesale trade affiliates and for more than 40 percent of the total affiliate deficit.

- Among affiliates of the seven major investing countries, Japanese-owned affiliates have consistently accounted for the largest share of affiliate trade—about 40 percent of exports and 50 percent of imports since the mid-1980's. All but a small share of their trade has been by wholesale trade affiliates, which primarily serve as distribution channels for exported and imported goods. In manufacturing, the share of affiliate trade accounted for by Japanese-owned affiliates has been much closer to that by affiliates of the other major investing countries.
- Compared with trade of other affiliates, trade of Japanese-owned affiliates has been very concentrated geographically, most of it being with Japan. Unlike other U.S. affiliates, Japanese-owned U.S. affiliates handle a dominant share of both U.S. exports to, and U.S. imports from, their country of ultimate ownership.
- Much of the merchandise trade of affiliates, particularly on the import side, is intrafirm trade with the affiliates' foreign parent groups. Intrafirm trade has accounted for a particularly large share of the imports by wholesale trade affiliates, reflecting the role of these affiliates as U.S. distributors for their parent companies.
- U.S. affiliates in manufacturing have relied on imports for about one-sixth of their purchased parts and other intermediate inputs, compared with about one-tenth for U.S.-owned manufacturers. Most of the total output of manufacturing affiliates—88 percent of it in 1991—has represented domestic (U.S.) content, in the form either of value added through affiliate production or of inputs purchased from other U.S. companies.

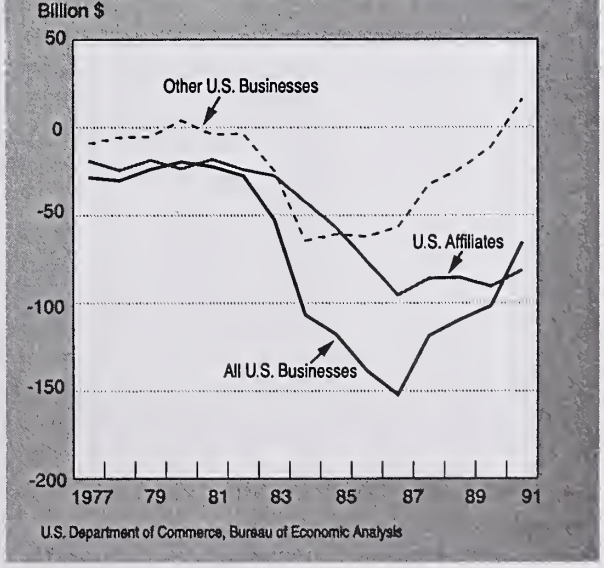
Overview of U.S.-Affiliate Merchandise Trade

The share of U.S. merchandise trade accounted for by U.S. affiliates of foreign companies has been sizable—roughly one-fifth of U.S. exports and one-third of U.S. imports—since at least 1977, when BEA began collecting annual data on trade by U.S. affiliates (table 1). In 1991, the most recent year for which data are available, affiliates' share of U.S. exports was 23 percent, and their share of U.S. imports was 37 percent. The 23-percent export share is approximately equal to the average share for the period as a whole. The 37-percent import share, in contrast, marks the period's high, the result of a steady increase in share during the latter half of the 1980's.

In every year since 1977, U.S. affiliates' total imports have been much larger than their total exports. In all years except 1984 and 1985, their trade deficit amounted to more than one-half of the total U.S. merchandise trade deficit; in 1980 and 1991, their deficit was larger than the total deficit. In interpreting these findings, however, one should keep in mind that the trading behavior of U.S. affiliates of foreign companies, although important, may be overshadowed in the determination of the total U.S. trade deficit by broader factors related to exchange rates, differences between U.S. and foreign rates of economic growth, and differences between rates of saving and investment in the United States and abroad. Even though affiliates import much more than they export, it cannot necessarily be inferred that the U.S. trade deficit would be smaller in the absence of foreign direct investment. As mentioned earlier, U.S. affiliates are often used to facilitate imports that would have been brought into the country even in their absence, and some imports are used by affiliates to support production of goods in the United States that otherwise would have been produced entirely abroad and then imported.

Since 1984, there has been a persistent increase in the affiliate share of the trade deficit. The increase in share since 1986 largely reflects a steady

CHART 1



improvement in the trade balance of domestically owned U.S. businesses, rather than an increase in the affiliate deficit, which has held at over $80 billion (chart 1).

Since 1988, the ratio of imports to exports, which measures the relative propensity of U.S. affiliates to import and export, has been about double the ratio for domestically owned U.S. businesses, with both ratios showing a declining trend. The ratio for domestically owned U.S. businesses increased steadily in the early 1980's, to a high of 1.39 in 1984, and then began a steady decline; this pattern closely paralleled the rise and fall of the U.S. dollar in foreign exchange markets.[1] In contrast, the ratio for U.S. affiliates increased dramatically in the mid-1980's, to a high of 2.98 in 1987, before beginning its current downtrend. As of 1991, U.S. affiliates' imports continued to exceed their exports by more than 80 percent.

The large and sustained trade deficit for U.S. affiliates can be explained largely by the activity of wholesale trade affiliates, many of which serve as the principal distribution channel for products imported from their parent companies. Wholesale trade affiliates dominated the merchandise trade of all U.S. affiliates in each year during 1977–91; in the last decade, they accounted for over 70 percent of the total affiliate trade deficit (table 2). Since 1985, wholesale trade affiliates' imports have been more than twice as large as their exports. In each year during 1985–91, about 80 percent of the imports by these affiliates were from their foreign parent groups.[2] As might be expected, wholesale trade affiliates—like most

1. The trade-weighted value of the U.S. dollar increased in every year from 1980 to 1985, then generally trended downward through 1991.

2. The foreign parent of a U.S. affiliate is the first person outside the United States in the affiliate's ownership chain that has a direct investment interest in the affiliate. The affiliate's foreign parent group consists of (1) the foreign parent, (2) any person, proceeding up the foreign parent's ownership chain, that owns more than 50 percent of the person below it, up to and including the ultimate beneficial owner (see footnote 8), and (3) any foreign

Table 1.—Total U.S. Merchandise Trade and Merchandise Trade of U.S. Affiliates of Foreign Companies, 1977–91

	U.S. exports			U.S. imports			Balance			Ratio of imports to exports		
	All U.S. businesses	U.S. affiliates	Other U.S. businesses	All U.S. businesses	U.S. affiliates	Other U.S. businesses	All U.S. businesses	U.S. affiliates	Other U.S. businesses	All U.S. businesses	U.S. affiliates	Other U.S. businesses
	Millions of dollars											
1977	123,182	24,858	98,324	151,534	43,896	107,638	-28,352	-19,038	-9,314	1.23	1.77	1.09
1978	145,847	32,169	113,678	176,052	56,567	119,485	-30,205	-24,398	-5,807	1.21	1.76	1.05
1979	186,363	44,341	142,022	210,285	63,039	147,246	-23,922	-18,698	-5,224	1.13	1.42	1.04
1980	225,566	52,199	173,367	245,262	75,803	169,459	-19,696	-23,604	3,908	1.09	1.45	.98
1981	238,715	64,066	174,649	260,982	82,259	178,723	-22,267	-18,193	-4,074	1.09	1.28	1.02
1982	216,442	60,236	156,206	243,952	84,290	159,662	-27,510	-24,054	-3,456	1.13	1.40	1.02
1983	205,639	53,854	151,785	258,048	81,464	176,584	-52,409	-27,610	-24,799	1.25	1.51	1.16
1984	223,976	58,186	165,790	330,678	100,489	230,189	-106,702	-42,303	-64,399	1.48	1.73	1.39
1985	218,815	56,401	162,414	336,526	113,331	223,195	-117,711	-56,930	-60,781	1.54	2.01	1.37
1986	227,159	49,560	177,599	365,438	125,732	239,706	-138,279	-76,172	-62,107	1.61	2.54	1.35
1987	254,122	48,091	206,031	406,241	143,537	262,704	-152,119	-95,446	-56,673	1.60	2.98	1.28
1988	322,426	69,541	252,885	440,952	155,533	285,419	-118,526	-85,992	-32,534	1.37	2.24	1.13
1989	363,812	86,316	277,496	473,211	171,847	301,364	-109,399	-85,531	-23,868	1.30	1.99	1.09
1990	393,592	92,308	301,284	495,311	182,936	312,375	-101,719	-90,628	-11,091	1.26	1.98	1.04
1991[P]	421,730	98,369	323,361	487,129	179,694	307,435	-65,399	-81,325	15,926	1.16	1.83	.95
	Percent of all U.S. businesses											
1977	100.0	20.2	79.8	100.0	29.0	71.0	100.0	67.1	32.9			
1978	100.0	22.1	77.9	100.0	32.1	67.9	100.0	80.8	19.2			
1979	100.0	23.8	76.2	100.0	30.0	70.0	100.0	78.2	21.8			
1980	100.0	23.1	76.9	100.0	30.9	69.1	100.0	119.8	-19.8			
1981	100.0	26.8	73.2	100.0	31.5	68.5	100.0	81.7	18.3			
1982	100.0	27.8	72.2	100.0	34.6	65.4	100.0	87.4	12.6			
1983	100.0	26.2	73.8	100.0	31.6	68.4	100.0	52.7	47.3			
1984	100.0	26.0	74.0	100.0	30.4	69.6	100.0	39.6	60.4			
1985	100.0	25.8	74.2	100.0	33.7	66.3	100.0	48.4	51.6			
1986	100.0	21.8	78.2	100.0	34.4	65.6	100.0	55.1	44.9			
1987	100.0	18.9	81.1	100.0	35.3	64.7	100.0	62.7	37.3			
1988	100.0	21.6	78.4	100.0	35.3	64.7	100.0	72.6	27.4			
1989	100.0	23.7	76.3	100.0	36.3	63.7	100.0	78.2	21.8			
1990	100.0	23.5	76.5	100.0	36.9	63.1	100.0	89.1	10.9			
1991[P]	100.0	23.3	76.7	100.0	36.9	63.1	100.0	124.4	-24.4			

[P] Preliminary.

NOTE.—The data on U.S. merchandise exports and imports by all U.S. businesses are from the Census Bureau. The merchandise trade figures for other U.S. businesses were derived through subtraction. The figures shown for all U.S. businesses differ somewhat from the Census-basis figures reported in table 2A of "U.S. International Transactions, First Quarter 1993," SURVEY OF CURRENT BUSINESS 73 (June 1993): 76. For exports, the major reason for the difference is that the June Survey figures do not include undocumented data on U.S. exports to Canada, which are included in the figures shown in this table. For both exports and imports, an additional reason for the difference is rounding at the commodity level.

wholesalers—simply resell the goods they import: According to data from BEA's last benchmark survey, more than 90 percent of the imports by these affiliates in 1987 were goods for resale without any further processing, assembly, or manufacture by the affiliates.[3]

Because many wholesale trade affiliates are established expressly to market the products of their parent companies, it is not surprising that they import much more than they export. Indeed, a similar pattern may be observed for the foreign wholesale trade affiliates of U.S. companies, which regularly run large trade deficits with the United States: In the past decade, imports from the United States by these affiliates have generally been more than triple their exports to the United States.[4]

A large part of the trade deficit of U.S. wholesale trade affiliates is related to imports of motor vehicles. In every year during 1977–91, affiliates selling motor vehicles and equipment accounted for more than 30 percent of total imports by U.S. wholesale trade affiliates; in 1984–89, their share was more than 40 percent. Given that their exports are relatively small, these affiliates have consistently accounted for more than one-half of the trade deficit of U.S. wholesale trade affiliates and for more than 40 percent of the total affiliate deficit.

U.S. affiliates in "other industries" have also had a high import/export ratio (more than 3.0 in most years since 1986), but their share of the total affiliate deficit has been much smaller than that for wholesale trade affiliates. Their high import/export ratio reflects large imports and relatively negligible exports by affiliates in petroleum.[5] In 1979–82, when world oil prices were very high, affiliates in "other industries" accounted for over one-third of the total affiliate deficit, but as oil prices subsequently declined, their share of the deficit also declined; by 1985, it

person, proceeding down the ownership chain(s) of each of these members, that is owned more than 50 percent by the person above it.

3. BEA's benchmark surveys of foreign direct investment in the United States, which are conducted every 5 years, include many data items that are not collected annually. The last benchmark survey covered 1987. Preliminary results of the next benchmark survey, covering 1992, will be available in the summer of 1994.

4. Data on the U.S. merchandise trade of foreign affiliates of U.S. companies are collected in annual and benchmark surveys of U.S. direct investment abroad. For the most recent data, see "U.S. Multinational Companies: Operations in 1991," SURVEY OF CURRENT BUSINESS 73 (July 1993): 52.

5. In all years except 1985 and 1986, petroleum affiliates accounted for more than 80 percent of total imports by affiliates in "other industries."

Table 2.—Merchandise Trade of U.S. Affiliates of Foreign Companies, by Major Industry of Affiliate, 1977–91

	Exports shipped by U.S. affiliates				Imports shipped to U.S. affiliates				Balance				Ratio of imports to exports			
	All industries	Manufacturing	Wholesale trade	Other industries	All industries	Manufacturing	Wholesale trade	Other industries	All industries	Manufacturing	Wholesale trade	Other industries	All industries	Manufacturing	Wholesale trade	Other industries
	Millions of dollars															
1977	24,858	3,557	19,983	1,318	43,896	5,624	31,369	6,903	–19,038	–2,067	–11,386	–5,585	1.77	1.58	1.57	5.24
1978	32,169	4,521	25,898	1,750	56,567	7,193	42,733	6,641	–24,398	–2,672	–16,835	–4,891	1.76	1.59	1.65	3.79
1979	44,341	6,548	35,600	2,193	63,039	8,668	45,621	8,750	–18,698	–2,120	–10,021	–6,557	1.42	1.32	1.28	3.99
1980	52,199	9,048	40,713	2,438	75,803	10,413	54,020	11,370	–23,604	–1,365	–13,307	–8,932	1.45	1.15	1.33	4.66
1981	64,066	13,590	46,487	3,989	82,259	13,226	57,908	11,125	–18,193	364	–11,421	–7,136	1.28	.97	1.25	2.79
1982	60,236	12,883	43,336	4,017	84,290	12,386	61,679	10,225	–24,054	497	–18,343	–6,208	1.40	.96	1.42	2.55
1983	53,854	12,045	38,454	3,355	81,464	14,021	59,048	8,395	–27,610	–1,976	–20,594	–5,040	1.51	1.16	1.54	2.50
1984	58,186	13,078	40,539	4,569	100,489	18,172	72,478	9,839	–42,303	–5,094	–31,939	–5,270	1.73	1.39	1.79	2.15
1985	56,401	12,849	38,257	5,295	113,331	18,635	84,568	10,128	–56,930	–5,786	–46,311	–4,833	2.01	1.45	2.21	1.91
1986	49,560	12,805	33,727	3,028	125,732	20,617	94,517	10,598	–76,172	–7,812	–60,790	–7,570	2.54	1.61	2.80	3.50
1987	48,091	15,487	29,165	3,439	143,537	24,546	107,278	11,713	–95,446	–9,059	–78,113	–8,274	2.98	1.58	3.68	3.41
1988	69,541	25,192	40,035	4,314	155,533	32,762	111,481	11,290	–85,992	–7,570	–71,446	–6,976	2.24	1.30	2.78	2.62
1989	86,316	31,873	49,096	5,347	171,847	40,871	114,049	16,927	–85,531	–8,998	–64,953	–11,580	1.99	1.28	2.32	3.17
1990	92,308	36,069	49,925	6,314	182,936	47,171	113,639	22,126	–90,628	–11,102	–63,714	–15,812	1.98	1.31	2.28	3.50
1991[P]	98,369	39,432	51,995	6,942	179,694	47,983	112,064	19,647	–81,325	–8,551	–60,069	–12,705	1.83	1.22	2.16	2.83
	Percent of all-industries total															
1977	100.0	14.3	80.4	5.3	100.0	12.8	71.5	15.7	100.0	10.9	59.8	29.3				
1978	100.0	14.1	80.5	5.4	100.0	12.7	75.5	11.7	100.0	11.0	69.0	20.0				
1979	100.0	14.8	80.3	4.9	100.0	13.8	72.4	13.9	100.0	11.3	53.6	35.1				
1980	100.0	17.3	78.0	4.7	100.0	13.7	71.3	15.0	100.0	5.8	56.4	37.8				
1981	100.0	21.2	72.6	6.2	100.0	16.1	70.4	13.5	100.0	–2.0	62.8	39.2				
1982	100.0	21.4	71.9	6.7	100.0	14.7	73.2	12.1	100.0	–2.1	76.3	25.8				
1983	100.0	22.4	71.4	6.2	100.0	17.2	72.5	10.3	100.0	7.2	74.6	18.3				
1984	100.0	22.5	69.7	7.9	100.0	18.1	72.1	9.8	100.0	12.0	75.5	12.5				
1985	100.0	22.8	67.8	9.4	100.0	16.4	74.6	8.9	100.0	10.2	81.3	8.5				
1986	100.0	25.8	68.1	6.1	100.0	16.4	75.2	8.4	100.0	10.3	79.8	9.9				
1987	100.0	32.2	60.6	7.2	100.0	17.1	74.7	8.2	100.0	9.5	81.8	8.7				
1988	100.0	36.2	57.6	6.2	100.0	21.1	71.7	7.3	100.0	8.8	83.1	8.1				
1989	100.0	36.9	56.9	6.2	100.0	23.8	66.4	9.9	100.0	10.5	75.9	13.5				
1990	100.0	39.1	54.1	6.8	100.0	25.8	62.1	12.1	100.0	12.3	70.3	17.4				
1991[P]	100.0	40.1	52.9	7.1	100.0	26.7	62.4	10.9	100.0	10.5	73.9	15.6				

[P] Preliminary.

had fallen below 10 percent. Their share of the deficit increased from 8 percent in 1988 to 14 percent in 1989, reflecting a large increase in imports by petroleum affiliates.

U.S. affiliates in manufacturing have consistently accounted for less than one-eighth of the total affiliate deficit. The import/export ratio for these affiliates has generally been much lower than that for wholesale trade affiliates or for affiliates in "other industries." In 1988–91, the imports of manufacturing affiliates exceeded their exports by less than one-third. This deficit partly reflects a reliance on imports for materials and components used in production for the U.S. market. (This topic is examined in the final section of this article.) It may also reflect wholesale trade activities by manufacturing affiliates.[6]

Manufacturing affiliates' shares of both exports and imports of all U.S. affiliates have increased steadily since the late 1970's. Their share of exports rose from 14 percent in 1977 to 40 percent in 1991; the most rapid gains were during 1985–90. Their share of imports rose from 13 percent in 1977 to 27 percent in 1991; the most rapid gains were during 1987–90. The shares of wholesale trade affiliates declined correspondingly, from 80 percent to 53 percent for exports and from 71 percent to 62 percent for imports.

The recent increase in the share of U.S.-affiliate trade accounted for by manufacturing affiliates partly reflects the rapid growth in foreign direct investment in the United States in the late 1980's, particularly in manufacturing. From 1985 to 1990, total assets of manufacturing affiliates increased 152 percent (from $170 billion to $429 billion), whereas total assets of wholesale trade affiliates increased 109 percent (from $77 billion to $160 billion). During the same period, total sales of manufacturing affiliates increased 113 percent (from $186 billion to $396 billion), whereas total sales of wholesale trade affiliates increased only 56 percent (from $241 billion to $375 billion).

U.S.-Affiliate Trade by Country of Ownership

This section compares the merchandise trade of U.S. affiliates of the seven largest investing countries: Canada, France, Germany, Japan, the Netherlands, Switzerland, and the United Kingdom.[7] In every year since 1977, affiliates with ultimate beneficial owners (UBO's) in these countries have accounted for more than 80 percent of total merchandise exports and imports of U.S. affiliates (table 3).[8] Japanese-owned affiliates have accounted for the largest shares—about 40 percent of exports and 50 percent of imports in most years since the mid-1980's. In terms of exports, French-owned affiliates have consistently ranked second to Japanese-owned affiliates, accounting for 12 percent of affiliate exports in 1991; in terms of imports, German-owned affiliates have generally ranked second, accounting for 10 percent of affiliate imports in 1991.

The large share of total affiliate trade accounted for by Japanese-owned affiliates far exceeds their share of U.S.-affiliate gross product (15 percent in 1991) and predates the dramatic increase in Japanese direct investment in the United States that occurred in the late 1980's. As early as 1977 (when their share of U.S.-affiliate gross product was only 7 percent), Japanese-owned affiliates accounted for 42 percent of U.S.-affiliate exports and 37 percent of U.S.-affiliate imports. Their export share changed little thereafter, but their import share increased significantly—from 36 percent in 1980 to a peak of 51 percent in 1985.

The merchandise trade of Japanese-owned affiliates has been dominated by wholesale trade affiliates. Through the mid-1980's, these affiliates accounted for more than 95 percent of the U.S. exports and imports of Japanese-owned affiliates. Although that share began to decline thereafter, it was still high—84 percent—in 1991.

Most of the exports by Japanese-owned affiliates have been by wholesale trade affiliates of Japanese trading companies, whereas most of the imports have been by wholesale trade affiliates of Japanese manufacturing companies. In 1991, wholesale trade affiliates of Japanese trading companies accounted for 73 percent of the total exports by Japanese-owned affiliates but for only 27 percent of their total imports. More than three-fourths of these exports and imports were by affiliates of the *sogo shosha*, Japan's big general trading companies.[9] Wholesale trade affiliates of Japanese manufacturing companies accounted

6. The data collected by BEA are on an enterprise basis, with all of the affiliate's activities consolidated on a single report. Because each affiliate is classified by primary industry according to the composition of its sales, an affiliate's operations in secondary industries will appear as part of the data for its primary industry. A number of affiliates whose primary activity is manufacturing are engaged in wholesale trading as a secondary activity.

7. The seven countries are the largest investors in terms of affiliate employment, sales, and gross product. In 1991, affiliates of these countries together accounted for 82 percent of the employment, sales, and gross product of all U.S. affiliates.

8. An affiliate's UBO is that person, proceeding up the affiliate's ownership chain, beginning with and including the foreign parent, that is not owned more than 50 percent by another person.

9. The *sogo shosha* have long served an important role as intermediate agents for much of Japan's trade with other countries, especially for trade in bulk commodities. See Alexander K. Young, *The Sogo Shosha: Japan's Multinational Trading Companies* (Boulder, Colorado: Westview Press, 1979).

Table 3.—Merchandise Trade of All U.S. Affiliates and of U.S. Affiliates in Manufacturing, by Country of UBO, 1977–91

	Affiliate exports by country of UBO									Affiliate imports by country of UBO								
	All countries	Canada	France	Germany [1]	Japan	Netherlands	Switzerland	United Kingdom	Other countries	All countries	Canada	France	Germany [1]	Japan	Netherlands	Switzerland	United Kingdom	Other countries
	Millions of dollars																	
Affiliates in all industries:																		
1977	24,858	854	6,396	682	10,396	827	2,117	1,575	2,011	43,896	3,853	3,271	2,883	16,313	4,464	1,685	5,447	5,980
1978	32,169	1,325	7,618	1,107	13,820	1,016	2,557	2,031	2,695	56,567	4,664	2,423	5,572	22,963	4,160	2,289	5,897	8,599
1979	44,341	1,763	11,222	2,893	17,347	1,364	3,320	2,252	4,180	63,039	5,194	2,605	6,915	25,370	4,933	2,854	7,312	7,856
1980	52,199	1,792	10,209	3,328	19,136	1,934	3,055	3,196	9,549	75,803	5,553	3,749	7,519	27,653	6,436	2,542	8,499	13,852
1981	64,066	4,528	11,832	5,305	22,659	2,319	3,769	3,682	9,972	82,259	8,223	4,359	8,667	33,285	5,427	2,303	8,814	11,181
1982	60,236	4,162	12,947	4,578	21,514	2,182	3,370	3,756	7,727	84,290	6,071	3,886	8,314	35,901	5,332	1,932	8,203	14,651
1983	53,854	4,290	9,253	2,684	22,816	1,532	3,053	3,291	6,935	81,464	5,995	3,575	8,722	36,568	4,309	2,125	7,961	12,209
1984	58,186	4,505	11,673	2,993	23,764	1,594	3,296	3,197	7,164	100,489	7,208	4,024	12,132	47,824	4,375	2,626	8,439	13,861
1985	56,401	4,172	11,169	3,170	22,715	1,658	2,847	3,038	7,632	113,331	6,939	3,921	12,701	58,102	4,540	2,897	9,551	14,680
1986	49,560	4,372	9,565	2,588	21,260	1,272	2,329	3,042	5,132	125,732	7,139	4,391	14,359	63,802	3,608	3,472	10,119	18,842
1987	48,091	4,963	5,422	3,636	20,413	1,485	1,937	3,735	6,500	143,537	8,033	4,330	17,264	72,564	4,268	4,269	10,622	22,187
1988	69,541	5,858	11,026	5,497	26,400	2,752	2,941	4,729	10,338	155,533	9,298	7,032	16,082	77,688	4,951	5,210	11,461	23,811
1989	86,316	6,020	13,598	6,088	34,076	2,379	4,236	6,930	12,989	171,847	10,596	7,873	16,961	84,511	6,292	4,832	12,715	28,067
1990	92,308	6,162	11,748	6,383	39,293	2,739	5,070	8,046	12,867	182,936	10,993	8,239	18,417	87,475	6,612	4,965	13,388	32,847
1991[P]	98,369	6,402	11,636	7,292	41,212	3,215	5,637	8,405	14,570	179,694	10,383	7,516	17,360	89,675	6,326	4,822	12,189	31,423
Manufacturing affiliates:																		
1977	3,557	533	(D)	377	325	311	(D)	815	453	5,624	1,729	599	641	281	423	395	829	727
1978	4,521	731	(D)	754	442	(D)	(D)	910	519	7,193	2,330	836	916	411	482	493	918	807
1979	6,548	961	(D)	1,247	713	527	(D)	1,132	699	8,668	2,383	720	1,334	562	(D)	987	(D)	1,013
1980	9,048	999	1,447	1,520	761	637	700	1,628	1,356	10,413	2,809	1,446	1,670	642	556	769	1,461	1,060
1981	13,590	3,725	1,656	1,675	1,153	821	533	1,908	2,119	13,226	4,020	1,590	1,775	894	725	763	1,763	1,696
1982	12,883	3,308	(D)	1,705	991	803	(D)	1,927	2,073	12,386	2,952	1,958	1,795	997	860	626	1,843	1,355
1983	12,045	3,385	(D)	1,555	957	529	(D)	1,792	2,046	14,021	3,071	1,838	2,289	1,197	884	719	1,861	2,162
1984	13,078	3,682	(D)	1,761	948	656	(D)	1,833	2,273	18,172	3,982	2,034	3,329	1,739	1,193	938	2,377	2,580
1985	12,849	3,367	(D)	1,808	850	465	619	2,078	(D)	18,635	3,701	1,654	3,577	2,365	1,179	1,096	2,496	2,567
1986	12,805	3,511	1,220	1,818	911	572	724	2,009	2,040	20,617	3,691	1,932	3,830	2,751	1,556	1,292	2,759	2,806
1987	15,487	4,042	937	2,798	1,126	707	770	2,631	2,476	24,546	4,274	1,773	4,312	4,195	1,443	1,632	3,339	3,578
1988	25,192	4,807	4,136	4,480	2,033	1,696	1,068	3,456	3,516	32,762	4,625	4,036	5,325	5,887	2,324	2,230	4,457	3,878
1989	31,873	4,854	4,918	5,145	4,146	1,481	1,967	4,895	4,467	40,871	5,759	4,112	5,965	10,063	2,522	2,268	5,061	5,121
1990	36,069	5,401	5,278	5,260	5,295	1,423	2,819	5,719	4,874	47,171	5,794	4,887	6,693	14,056	2,580	2,370	5,144	5,647
1991[P]	39,432	5,504	5,568	5,830	6,085	1,759	3,235	6,194	5,257	47,983	5,825	4,078	6,692	13,933	2,509	2,696	5,325	6,925
	Percent of all-countries total																	
Affiliates in all industries:																		
1977	100.0	3.4	25.7	2.7	41.8	3.3	8.5	6.3	8.1	100.0	8.8	7.5	6.6	37.2	10.2	3.8	12.4	13.6
1978	100.0	4.1	23.7	3.4	43.0	3.2	7.9	6.3	8.4	100.0	8.2	4.3	9.9	40.6	7.4	4.0	10.4	15.2
1979	100.0	4.0	25.3	6.5	39.1	3.1	7.5	5.1	9.4	100.0	8.2	4.1	11.0	40.2	7.8	4.5	11.6	12.5
1980	100.0	3.4	19.6	6.4	36.7	3.7	5.9	6.1	18.3	100.0	7.3	4.9	9.9	36.5	8.5	3.4	11.2	18.3
1981	100.0	7.1	18.5	8.3	35.4	3.6	5.9	5.7	15.6	100.0	10.0	5.3	10.5	40.5	6.6	2.8	10.7	13.6
1982	100.0	6.9	21.5	7.6	35.7	3.6	5.6	6.2	12.8	100.0	7.2	4.6	9.9	42.6	6.3	2.3	9.7	17.4
1983	100.0	8.0	17.2	5.0	42.4	2.8	5.7	6.1	12.9	100.0	7.4	4.4	10.7	44.9	5.3	2.6	9.8	15.0
1984	100.0	7.7	20.1	5.1	40.8	2.7	5.7	5.5	12.3	100.0	7.2	4.0	12.1	47.6	4.4	2.6	8.4	13.8
1985	100.0	7.4	19.8	5.6	40.3	2.9	5.0	5.4	13.5	100.0	6.1	3.5	11.2	51.3	4.0	2.6	8.4	13.0
1986	100.0	8.8	19.3	5.2	42.9	2.6	4.7	6.1	10.4	100.0	5.7	3.5	11.4	50.7	2.9	2.8	8.0	15.0
1987	100.0	10.3	11.3	7.6	42.4	3.1	4.0	7.8	13.5	100.0	5.6	3.0	12.0	50.6	3.0	3.0	7.4	15.5
1988	100.0	8.4	15.9	7.9	38.0	4.0	4.2	6.8	14.9	100.0	6.0	4.5	10.3	49.9	3.2	3.3	7.4	15.3
1989	100.0	7.0	15.8	7.1	39.5	2.8	4.9	8.0	15.0	100.0	6.2	4.6	9.9	49.2	3.7	2.8	7.4	16.3
1990	100.0	6.7	12.7	6.9	42.6	3.0	5.5	8.7	13.9	100.0	6.0	4.5	10.1	47.8	3.6	2.7	7.3	18.0
1991[P]	100.0	6.5	11.8	7.4	41.9	3.3	5.7	8.5	14.8	100.0	5.8	4.2	9.7	49.9	3.5	2.7	6.8	17.5
Manufacturing affiliates:																		
1977	100.0	15.0	(D)	10.6	9.1	8.7	(D)	22.9	12.7	100.0	30.7	10.7	11.4	5.0	7.5	7.0	14.7	12.9
1978	100.0	16.2	(D)	16.7	9.8	(D)	(D)	20.1	11.5	100.0	32.4	11.6	12.7	5.7	6.7	6.9	12.8	11.2
1979	100.0	14.7	(D)	19.0	10.9	8.0	(D)	17.3	10.7	100.0	27.5	8.3	15.4	6.5	(D)	11.4	(D)	11.7
1980	100.0	11.0	16.0	16.8	8.4	7.0	7.7	18.0	15.0	100.0	27.0	13.9	16.0	6.2	5.3	7.4	14.0	10.2
1981	100.0	27.4	12.2	12.3	8.5	6.0	3.9	14.0	15.6	100.0	30.4	12.0	13.4	6.8	5.5	5.8	13.3	12.8
1982	100.0	25.7	(D)	13.2	7.7	6.2	(D)	15.0	16.1	100.0	23.8	15.8	14.5	8.0	6.9	5.1	14.9	10.9
1983	100.0	28.1	(D)	12.9	7.9	4.4	(D)	14.9	17.0	100.0	21.9	13.1	16.3	8.5	6.3	5.1	13.3	15.4
1984	100.0	28.2	(D)	13.5	7.2	5.0	(D)	14.0	17.4	100.0	21.9	11.2	18.3	9.6	6.6	5.2	13.1	14.2
1985	100.0	26.2	(D)	14.1	6.6	3.6	4.8	16.2	(D)	100.0	19.9	8.9	19.2	12.7	6.3	5.9	13.4	13.8
1986	100.0	27.4	9.5	14.2	7.1	4.5	5.7	15.7	15.9	100.0	17.9	9.4	18.6	13.3	7.5	6.3	13.4	13.6
1987	100.0	26.1	6.1	18.1	7.3	4.6	5.0	17.0	16.0	100.0	17.4	7.2	17.6	17.1	5.9	6.6	13.6	14.6
1988	100.0	19.1	16.4	17.8	8.1	6.7	4.2	13.7	14.0	100.0	14.1	12.3	16.3	18.0	7.1	6.8	13.6	11.8
1989	100.0	15.2	15.4	16.1	13.0	4.6	6.2	15.4	14.0	100.0	14.1	10.1	14.6	24.6	6.2	5.5	12.4	12.5
1990	100.0	15.0	14.6	14.6	14.7	3.9	7.8	15.9	13.5	100.0	12.3	10.4	14.2	29.8	5.5	5.0	10.9	12.0
1991[P]	100.0	14.0	14.1	14.8	15.4	4.5	8.2	15.7	13.3	100.0	12.1	8.5	13.9	29.0	5.2	5.6	11.1	14.4

[P] Preliminary.
[D] Suppressed to avoid disclosure of data of individual companies.
1. For the years prior to 1990, includes data only for the Federal Republic of Germany. Beginning with 1990, also includes the former German Democratic Republic (GDR). This change has no effect on the data because there were no U.S. affiliates of the former GDR prior to 1990.
UBO Ultimate beneficial owner

for 57 percent of the total imports by Japanese-owned affiliates; more than 90 percent of the imports by these wholesale trade affiliates were by affiliates specializing in motor vehicles, electrical goods, or office equipment.

For each of the other major investing countries, wholesale trade affiliates have generally accounted for a much smaller share of affiliate trade. They have, however, accounted for a large share of the exports by French-owned affiliates and of the imports by German-owned affiliates. In 1991, they accounted for about 50 percent of the exports by French-owned affiliates (down from 78 percent in 1987); almost all of the exports by French-owned wholesale trade affiliates were by affiliates specializing in farm-product raw materials. Wholesale trade affiliates accounted for 57 percent of the imports by German-owned affiliates; most of the imports by German-owned wholesale trade affiliates were by affiliates of Germany's major automobile manufacturers. For each of the other four major investing countries, wholesale trade affiliates accounted for less than one-third of both the exports and the imports by U.S. affiliates.

In manufacturing, the affiliate-trade shares among the major investing countries have been much more evenly distributed than in all industries combined. For exports, affiliates with UBO's in five of the countries (the United Kingdom, Japan, Germany, France, and Canada) each accounted for roughly 15 percent of the total exports by manufacturing affiliates in 1991. For imports, Japanese-owned affiliates accounted for the largest share (29 percent), followed by German-owned affiliates (14 percent). The sizable share of Japanese-owned affiliates in manufacturing-affiliate trade is a fairly recent phenomenon: In 1987, their export share was only 7 percent (much lower than the shares for Canadian-, German-, and British-owned affiliates), and their import share was 17 percent (slightly below the shares for German- and Canadian-owned affiliates). The increase in share for Japanese-owned affiliates after 1987 reflects the substantial increase in Japanese ownership in U.S. manufacturing industries that occurred in the late 1980's.[10] The trade share for French-owned affiliates increased sharply in 1988 after a large French electronics company acquired the consumer electronics business of a large U.S. company. For most of the 1980's, Canadian-owned affiliates accounted for the largest share of manufacturing-affiliate exports and imports; a significant part of this trade, however, was by a large minority-owned company.

In every year since 1977, imports have exceeded exports for affiliates with UBO's in Canada, Germany, Japan, the Netherlands, and the United Kingdom. This pattern can be traced mainly to the strong import orientation of the wholesale trade affiliates of these countries; in 1991, imports by these affiliates exceeded exports by more than 2 to 1 (table 4). In some cases, the import/export ratio was much higher: Imports by German-owned wholesale trade affiliates exceeded exports by more than 10 to 1, and imports by Canadian-owned wholesale trade affiliates exceeded exports by more than 5 to 1. For affiliates with UBO's in

10. The share of Japanese-owned manufacturing affiliates in the gross product of all manufacturing affiliates increased every year from 1987 to 1990, from 6 percent in 1987 to 12 percent in 1990.

Table 4.— Merchandise Trade of U.S. Affiliates, by Major Industry of Affiliate and Country of UBO, 1990 and 1991

[Millions of dollars]

	All countries		Canada		France		Germany		Japan		Netherlands		Switzerland		United Kingdom		Other countries	
	1990	1991 P	1990	1991 P	1990	1991 P	1990	1991 P	1990	1991 P	1990	1991 P	1990	1991 P	1990	1991 P	1990	1991 P
Exports shipped by U.S. affiliates:																		
All industries	92,308	98,369	6,162	6,402	11,748	11,636	6,383	7,292	39,293	41,212	2,739	3,215	5,070	5,637	8,046	8,405	12,867	14,570
Manufacturing	36,069	39,432	5,401	5,504	5,278	5,568	5,260	5,830	5,295	6,085	1,423	1,759	2,819	3,235	5,719	6,194	4,874	5,257
Wholesale trade	49,925	51,995	407	551	(D)	(D)	881	939	33,687	34,760	481	467	1,629	1,546	1,063	1,205	(D)	(D)
Other	6,314	6,942	354	347	(D)	(D)	242	523	311	367	835	989	622	856	1,264	1,006	(D)	(D)
Imports shipped to U.S. affiliates:																		
All industries	182,936	179,694	10,993	10,383	8,239	7,516	18,417	17,360	87,475	89,675	6,612	6,326	4,965	4,822	13,388	12,189	32,847	31,423
Manufacturing	47,171	47,983	5,794	5,825	4,887	4,078	6,693	6,692	14,056	13,933	2,580	2,509	2,370	2,696	5,144	5,325	5,647	6,925
Wholesale trade	113,639	112,064	3,594	2,871	2,948	3,059	11,005	9,860	73,141	75,426	1,041	1,045	1,368	1,269	5,277	3,970	15,265	14,564
Other	22,126	19,647	1,605	1,687	404	379	719	808	278	316	2,991	2,772	1,227	857	2,967	2,894	11,935	9,934
Ratio of imports to exports:																		
All industries	1.98	1.83	1.78	1.62	.70	.65	2.89	2.38	2.23	2.18	2.41	1.97	.98	.86	1.66	1.45	2.55	2.16
Manufacturing	1.31	1.22	1.07	1.06	.93	.73	1.27	1.15	2.65	2.29	1.81	1.43	.84	.83	.90	.86	1.16	1.32
Wholesale trade	2.28	2.16	8.83	5.21	(D)	(D)	12.49	10.50	2.17	2.17	2.16	2.24	.84	.82	4.96	3.29	(D)	(D)
Other	3.50	2.83	4.53	4.86	(D)	(D)	2.97	1.54	.89	.86	3.58	2.80	1.97	1.00	2.35	2.88	(D)	(D)

P Preliminary.
D Suppressed to avoid disclosure of data of individual companies.
UBO Ultimate beneficial owner

the Netherlands and the United Kingdom, a substantial portion of the trade deficit was in "other industries," reflecting large imports and minimal exports by affiliates in petroleum.

In contrast to the pattern for affiliates of the other five countries, exports have usually exceeded imports for affiliates with UBO's in France and Switzerland. French-owned affiliates had trade surpluses every year during 1977–91, primarily because of substantial exports by a few wholesale trade affiliates in farm-product raw materials, which are major exporters of grain. Swiss-owned affiliates had surpluses prior to 1985 and again in 1990 and 1991.

In manufacturing, the import/export ratio in 1991 was close to unity for affiliates of most of the major investing countries; affiliates with UBO's in France, Switzerland, and the United Kingdom had moderate trade surpluses. In contrast, Japanese-owned affiliates imported more than twice as much as they exported, reflecting their reliance on imports as inputs to production (see the final section of this article).

Merchandise Trade by Product, 1987

This section discusses data on U.S.-affiliate trade by broad product category, which are available from the 1987 benchmark survey. Table 5 presents the product-level data on exports and imports by all U.S. affiliates, by affiliates of the seven major investing countries, and by all U.S. businesses.

Exports.—In 1987, U.S. affiliates accounted for roughly one-half or more of total U.S. exports in food, petroleum and products, and metal manufactures. For each of these product categories, more than three-fourths of the affiliate exports were by wholesale trade affiliates. In contrast, the affiliate shares of U.S. exports of road vehicles and of other transport equipment were very low, at less than 5 percent each.

By country, Japanese-owned affiliates accounted for the largest share of affiliate exports in 8 of the 11 product groups—including petroleum (over 80 percent), metal manufactures (70 percent), crude materials (58 percent), and food (47 percent). In each of these eight product groups,

Table 5.—Total U.S. Merchandise Trade and Merchandise Trade of U.S. Affiliates, by Product and by Country of UBO, 1987

[Millions of dollars]

	All U.S. businesses	U.S. affiliates by country of UBO									Other U.S. businesses
		All countries	Canada	France	Germany, Federal Republic of	Japan	Netherlands	Switzerland	United Kingdom	Other countries	
	Exports										
Total	243,859	48,091	4,963	5,422	3,636	20,413	1,485	1,937	3,735	6,500	195,768
Food	19,179	9,835	82	(D)	28	4,617	54	613	408	(D)	9,344
Beverages and tobacco	3,667	869	(D)	4	3	(D)	(D)	(D)	(D)	233	2,798
Crude materials	20,416	6,103	222	(D)	98	3,521	(D)	411	188	821	14,313
Petroleum and products	4,283	2,564	57	5	(D)	(D)	6	(D)	(D)	122	1,719
Coal and coke	3,430	1,327	514	1	225	(D)	(D)	0	(D)	118	2,103
Chemicals	26,381	8,055	(D)	332	1,409	1,670	526	431	771	(D)	18,326
Machinery	69,637	7,465	430	394	1,010	2,736	(D)	111	770	(D)	62,172
Road vehicles and parts	21,004	793	18	(D)	181	163	1	2	76	(D)	20,211
Other transport equipment	17,955	775	(D)	(D)	79	(D)	0	0	64	78	17,180
Metal manufactures	6,896	3,412	292	194	94	2,401	11	21	59	340	3,484
Other	51,012	6,895	1,278	338	(D)	(D)	68	(D)	883	1,403	44,117
	Imports										
Total	405,900	143,537	8,033	4,330	17,264	72,564	4,268	4,269	10,622	22,187	262,363
Food	20,547	6,400	475	226	204	1,054	8	294	2,036	2,103	14,147
Beverages and tobacco	4,105	1,739	400	(D)	1	(D)	(D)	(D)	748	141	2,366
Crude materials	11,526	4,193	548	(D)	110	1,472	182	(D)	298	1,252	7,333
Petroleum and products	44,033	10,915	1,476	(D)	(D)	1,031	(D)	(D)	(D)	3,292	33,118
Coal and coke	186	23	2	0	(D)	2	0	(D)	0	2	163
Chemicals	16,213	7,112	392	460	1,601	1,687	218	821	1,132	801	9,101
Machinery	99,433	35,790	858	451	2,555	25,619	1,395	990	875	3,047	63,643
Road vehicles and parts	72,709	47,416	8	(D)	9,314	31,446	3	5	300	(D)	25,293
Other transport equipment	5,667	1,544	82	(D)	148	588	(D)	0	(D)	42	4,123
Metal manufactures	25,144	10,662	1,894	492	1,304	4,237	14	127	490	2,104	14,482
Other	106,337	17,747	1,898	1,403	(D)	(D)	270	846	(D)	3,349	88,590

(D) Suppressed to avoid disclosure of data of individual companies.
UBO Ultimate beneficial owner

NOTE.—The data for all U.S. businesses are from the Bureau of the Census, *U.S. Exports: Schedule E Commodity Groupings by World Area and Country* (FT450/1987) and *U.S. General Imports: Schedule A Commodity Groupings by World Area and Country* (FT150/1987). The figures for other U.S. businesses were derived through subtraction. The totals for U.S. exports and imports shown in this table do not agree with those shown in table 1, partly because, unlike the totals shown in table 1, the figures for U.S. trade by Schedule A and Schedule E commodity group have not been revised since their initial publication in 1988. Also, for U.S. exports, the Schedule E figures are only for U.S. domestic exports, whereas the revised total reported in table 1 is for total exports including re-exports.

most of the exports by Japanese-owned affiliates were by wholesale trade affiliates of Japanese trading companies.

Among affiliates of the seven major investing countries, French-owned affiliates had the least diversified exports by product: Over one-half of their exports were of food products, shipped mostly by a few wholesale trade affiliates specializing in grain. Affiliates of the other six countries had exports that were considerably more diversified. Exports by Japanese- and British-owned affiliates were the most diverse: No one product group accounted for more than one-fourth of their exports.

Imports.—In 1987, U.S. affiliates accounted for almost two-thirds of total U.S. imports of road vehicles and parts and for over 40 percent of total imports of chemicals, beverages and tobacco, and metal manufactures. Wholesale trade affiliates accounted for 97 percent of the affiliate imports of road vehicles and parts and for most of the affiliate imports of metal manufactures; manufacturing affiliates accounted for most of the affiliate imports of chemicals and of beverages and tobacco.

By country, Japanese-owned affiliates accounted for the largest share of affiliate imports in 8 of the 11 product categories; they had majority shares in machinery (72 percent) and road vehicles and parts (66 percent). German-owned affiliates also accounted for a sizable share of U.S.-affiliate imports in road vehicles and parts (20 percent).

Among affiliates of the seven major investing countries, affiliates with UBO's in the Netherlands, Germany, and Japan had the least diversified imports by product. For Netherlands-owned affiliates, petroleum and machinery made up over three-fourths of total imports. For German-owned affiliates, over one-half of the imports were of road vehicles and parts, nearly all of which were imported by wholesale trade affiliates of German automobile manufacturers. For Japanese-owned affiliates, over three-fourths of the imports were of machinery or of road vehicles and parts, most of which were imported by wholesale trade affiliates of Japanese manufacturing companies.

Merchandise Trade by Country of Destination and Origin, 1987

This section discusses data on the geographic destination and origin of U.S.-affiliate trade, which are available from the 1987 benchmark survey. Table 6 presents two summary measures of the geographic pattern of exports and imports for U.S. affiliates of the seven major investing countries. The first measure is an index of the geographic diversification of affiliate exports and imports across all countries of destination or origin. The index is one that has been used in studies of industrial organization to measure industrial diversification within large corporations. As used here, the index reflects both the number of countries with which the affiliates of a given country engage in trade and the degree of equality among the merchandise trade shares of the different countries; it may range from 0 to 1, and the higher its value, the more geographically diversified are the exports or imports of a country's affiliates (see footnote to table 6). The second measure is the share of affiliate trade with the country of UBO.

In 1987, exports by Japanese-owned affiliates were the least geographically diversified; their diversification index is only 0.399, reflecting the fact that more than three-fourths of their exports were shipped to Japan. In contrast, the diversification index for the exports of affiliates of each of the other six countries is higher than 0.850, partly reflecting the fact that the share of exports shipped to any one country was less than one-third.

Exports to the country of UBO accounted for the largest share of exports by affiliates of all of the major investing countries except France and the Netherlands. For Netherlands-owned affiliates, the share of exports shipped to the Netherlands (20 percent) was slightly lower than the share shipped to the United Kingdom (22 percent). For French-owned affiliates, the share

Table 6.—Measures of Geographic Diversification of Merchandise Trade of U.S. Affiliates, by Country of UBO, 1987

	Index of geographic diversification of affiliate trade [1]		Trade with country of UBO as a percentage of total affiliate trade	
	Exports	Imports	Exports	Imports
Canada	0.876	0.456	30.7	73.4
France	.935	.671	6.4	55.7
Germany, Federal Republic of	.863	.318	30.2	82.5
Japan	.399	.132	77.3	93.1
Netherlands	.882	.915	19.7	16.6
Switzerland	.922	.795	15.2	42.8
United Kingdom	.909	.852	19.7	33.0

1. This index is expressed as $1 - \sum s_i^2$, where s_i is the share of country i in the total exports or imports of U.S. affiliates of the given country of UBO. The index may take on a value ranging from 0 to 1, with values closer to 1 indicating greater diversification in the destination of exports, or in the origin of imports, across all 190 countries identified in the 1987 benchmark survey. A similar index has been employed in studies of industrial diversification. See Charles H. Berry, "Corporate Growth and Diversification," *Journal of Law and Economics* 14 (October 1971): 371-83.

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of exports shipped to France (only 6 percent) was much lower than the shares shipped to Japan (17 percent) and to the Soviet Union. The data by country of destination cannot be cross-classified by product; however, it is likely that some, perhaps most, of the exports to Japan and the Soviet Union represented shipments of grain: Both countries were large grain importers, and, as noted earlier, most of the exports by French-owned affiliates consisted of food products shipped by wholesale traders specializing in grain.

Imports were considerably less geographically diversified than exports for affiliates of most of the major investing countries. Imports by Japanese-owned affiliates were the least diversified, with an index of 0.132; more than 90 percent of these imports originated in Japan. Imports from the country of UBO also accounted for the largest share of imports by affiliates of the other six countries; they accounted for a majority share of the imports by affiliates with UBO's in Germany, Canada, and France. The geographic pattern of affiliate imports was most diversified for Netherlands-owned affiliates: The share of imports received from the Netherlands was only 17 percent (which was still a higher share than that received from any other country). Petroleum, a relatively homogeneous commodity that can easily be imported from a number of different countries, accounted for a large share of the imports by Netherlands-owned affiliates. Almost one-third of their imports were from member nations of the Organization of Petroleum Exporting Countries.

Table 7 shows the U.S.-affiliate share of total trade between the United States and each of the seven major investing countries in 1987. It indicates the share of U.S. trade with each country that was accounted for by the country's U.S. affiliates, by other countries' U.S. affiliates, and by other U.S. companies. The addenda show, for comparison, the share of U.S. trade with each country that was accounted for by U.S.-owned affiliates located in that country.

Japanese-owned affiliates accounted for a dominant share of both U.S. exports to, and U.S. imports from, Japan—their country of ultimate ownership: These affiliates handled 56 percent of all U.S. exports to Japan and 80 percent of all U.S. imports from Japan. In contrast, for each of the other six countries, less than 10 percent of total U.S. exports to the country were shipped by U.S. affiliates with UBO's in that country; the corresponding shares for imports ranged from 52 percent for Germany to 8 percent for Canada.

For each of the major investing countries except Japan, more than 25 percent of total U.S. exports to the country consisted of shipments to the country's U.S.-owned affiliates, compared with a share of less than 10 percent shipped by U.S. affiliates with UBO's in the country. The share of U.S. exports to Canada accounted for by Canadian affiliates of U.S. companies was particularly large, at 57 percent. In contrast, the share of U.S. exports to Japan accounted for by

Table 7.—U.S. Merchandise Trade with Major Countries Accounted for by U.S. Affiliates of Foreign Companies and by Other U.S. Companies, 1987

	Millions of dollars					Percent of total U.S. trade					Addenda: Trade with foreign affiliates of U.S. companies in partner country	
	Total U.S. trade	Trade by U.S. affiliates			Trade by other U.S. companies	Total U.S. trade	Trade by U.S. affiliates			Trade by other U.S. companies	Millions of dollars	Percent of total U.S. trade
		Total	By affiliates with UBO located in partner country	By affiliates with UBO located elsewhere			Total	By affiliates with UBO located in partner country	By affiliates with UBO located elsewhere			
U.S. exports to:												
Canada	59,814	4,169	1,522	2,647	55,645	100.0	7.0	2.5	4.4	93.0	34,010	56.9
France	7,943	826	348	478	7,117	100.0	10.4	4.4	6.0	89.6	2,526	31.8
Germany, Federal Republic of	11,802	2,164	1,099	1,065	9,638	100.0	18.3	9.3	9.0	81.7	3,503	29.7
Japan	28,249	18,983	15,773	3,210	9,266	100.0	67.2	55.8	11.4	32.8	4,907	17.4
Netherlands	8,217	1,181	293	888	7,036	100.0	14.4	3.6	10.8	85.6	3,343	40.7
Switzerland	3,151	617	294	323	2,534	100.0	19.6	9.3	10.3	80.4	926	29.4
United Kingdom	14,114	2,568	737	1,831	11,546	100.0	18.2	5.2	13.0	81.8	5,292	37.5
U.S. imports from:												
Canada	71,085	7,952	5,898	2,054	63,133	100.0	11.2	8.3	2.9	88.8	30,670	43.1
France	10,730	3,189	2,412	777	7,541	100.0	29.7	22.5	7.2	70.3	1,475	13.7
Germany, Federal Republic of	27,155	16,372	14,239	2,133	10,783	100.0	60.3	52.4	7.9	39.7	2,158	7.9
Japan	84,575	69,266	67,580	1,686	15,309	100.0	81.9	79.9	2.0	18.1	8,739	10.3
Netherlands	3,964	1,173	707	466	2,791	100.0	29.6	17.8	11.8	70.4	504	12.7
Switzerland	4,249	2,421	1,825	596	1,828	100.0	57.0	43.0	14.0	43.0	298	7.0
United Kingdom	17,341	4,754	3,506	1,248	12,587	100.0	27.4	20.2	7.2	72.6	5,288	30.5

NOTE.—The data on total U.S. trade with each country are from the Census Bureau; the data on trade by other U.S. companies were derived through subtraction. The data in the addenda are from BEA's 1987 annual survey of U.S. direct investment abroad. Because U.S. companies with foreign affiliates may themselves be affiliates of foreign companies, these data may partly duplicate the trade data for U.S. affiliates shown in other columns.

Japanese affiliates of U.S. companies was only 17 percent.

Intrafirm Merchandise Trade

Much of the merchandise trade of U.S. affiliates of foreign companies, particularly on the import side, is intrafirm trade between U.S. affiliates and their foreign parent groups. In 1987–91, intrafirm trade accounted for about 40 percent of the exports and 75 percent of the imports of all U.S. affiliates.

By industry, intrafirm trade has accounted for a particularly large share of the trade by wholesale trade affiliates. In 1991, the share of exports by wholesale trade affiliates that was shipped to their foreign parent groups was 55 percent, compared with shares of 26 percent for manufacturing affiliates and 39 percent for affiliates in "other industries." The share of imports that was shipped from their foreign parent groups was 79 percent for wholesale trade affiliates, 71 percent for manufacturing affiliates, and 55 percent for affiliates in "other industries."

Among affiliates of the major investing countries, Japanese-owned affiliates have shipped a majority of their exports to their foreign parent groups in every year since 1977 (table 8). In 1991, the share of exports by these affiliates that was shipped to their foreign parent groups was 59 percent. Most of these intrafirm exports were by wholesale trade affiliates of Japanese trading companies. Netherlands-owned affiliates had the second largest intrafirm export share, at 40 percent.

For nearly all of the major investing countries, the share of imports received by affiliates from their foreign parent groups has consistently been higher than the share of exports shipped by affiliates to their foreign parent groups; the sole exception is intrafirm trade by Netherlands-owned affiliates prior to 1989. The shares of imports from foreign parent groups have been especially large for Japanese- and German-owned affiliates (more than 80 percent in most years). These sizable shares reflect the dominant role of wholesale trade affiliates as domestic distributors for their foreign parent companies. Imports from foreign parent groups also constituted a large share of total imports by Canadian-, French-, and Swiss-owned affiliates.

Trade between a U.S. affiliate and its foreign parent group need not be with the country of the affiliate's UBO, because the foreign parent group may include companies located in other countries. According to data from the 1987 benchmark survey, less than one-half of exports by French-, Netherlands-, Swiss-, and British-owned affiliates to their foreign parent groups were shipped to the UBO's country. In contrast, the share of exports to foreign parent groups that was shipped to the UBO's country was 94 percent for Japanese-owned affiliates, 90 percent for Canadian-owned affiliates, and 68 percent for German-owned affiliates.

U.S.-affiliate imports from their foreign parent groups show a greater tendency to be from the country of UBO. For U.S. affiliates of each of the seven major investing countries except the Netherlands, a majority of the 1987 imports from foreign parent groups were from the UBO's country. For Japanese-, Canadian-, and German-owned affiliates, more than 90 percent of the imports from their foreign parent groups were from the UBO's country.

Table 8.—Intrafirm Merchandise Trade by Country of UBO, 1977–91

[Percent]

	Country of UBO								
	All countries	Canada	France	Germany [1]	Japan	Netherlands	Switzerland	United Kingdom	Other countries
	Share of affiliate exports shipped to foreign parent groups								
1977	47.0	53.2	(D)	27.4	71.0	57.8	37.9	32.1	(D)
1978	51.5	54.0	30.9	21.0	73.1	49.0	38.7	32.1	38.0
1979	49.8	54.7	(D)	47.7	73.6	51.2	40.5	26.8	(D)
1980	40.2	53.2	3.1	31.9	74.0	41.6	32.1	21.7	21.0
1981	42.0	20.5	10.2	46.7	72.4	36.6	37.3	25.4	27.2
1982	41.5	17.8	24.0	46.0	63.9	43.8	23.4	20.0	36.8
1983	41.9	18.9	25.6	34.5	61.3	49.7	18.5	22.6	34.8
1984	46.5	19.6	37.4	35.1	66.4	48.0	23.4	26.7	36.4
1985	45.9	20.8	29.8	44.5	69.5	43.4	24.8	27.3	29.7
1986	44.1	19.1	33.5	46.8	58.0	43.4	26.6	26.8	45.1
1987	39.7	17.7	17.2	38.0	53.2	50.2	30.5	30.1	39.8
1988	38.0	18.9	11.6	32.7	54.8	51.1	25.7	27.3	41.8
1989	39.7	25.0	22.2	33.2	55.3	39.1	25.8	25.3	39.3
1990	40.9	18.7	24.9	32.1	57.1	42.7	30.6	22.9	36.2
1991[P]	42.3	18.9	27.8	33.1	58.5	39.8	32.0	24.9	37.3
	Share of affiliate imports shipped from foreign parent groups								
1977	70.3	85.6	90.6	88.9	84.4	41.2	49.8	37.6	59.5
1978	69.8	83.7	82.0	87.1	84.9	39.4	45.3	39.2	49.3
1979	71.9	84.1	76.9	88.2	86.4	37.2	38.7	40.4	63.7
1980	62.0	82.8	72.5	88.4	79.3	36.1	45.6	32.4	35.3
1981	63.5	66.4	64.4	84.7	78.4	20.1	53.9	34.0	46.3
1982	61.6	69.5	71.4	76.8	75.0	38.8	55.8	40.0	35.3
1983	67.3	72.7	74.3	81.1	77.5	28.7	55.7	40.6	55.2
1984	70.1	67.2	69.6	76.9	80.9	30.0	57.4	41.2	61.3
1985	72.1	68.7	67.8	82.3	82.4	31.3	62.3	38.2	62.1
1986	74.3	70.5	66.9	88.0	81.9	40.4	60.5	37.6	70.1
1987	75.4	71.2	75.4	86.9	79.0	39.5	76.3	46.9	76.4
1988	76.1	74.2	63.8	86.0	82.3	45.2	73.5	48.8	73.8
1989	75.6	67.6	65.5	84.0	83.9	40.9	73.6	49.0	71.6
1990	75.1	66.8	57.4	80.8	83.5	43.3	78.6	50.9	72.6
1991[P]	74.1	62.7	61.2	80.9	80.6	46.3	78.6	48.5	73.2

[D] Suppressed to avoid disclosure of data of individual companies.
[P] Preliminary.
1. For the years prior to 1990, includes data only for the Federal Republic of Germany. Beginning with 1990, also includes the former German Democratic Republic (GDR). This change has no effect on the data because there were no U.S. affiliates of the former GDR prior to 1990.
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Import Content of Inputs Purchased by Affiliates

In this section, the data on U.S.-affiliate imports are used in conjunction with other data from BEA surveys on foreign direct investment in the United States to examine the degree to which U.S. affiliates draw on foreign, rather than domestic, sources for the inputs used in their production. The primary measure employed is the share of imports in total intermediate inputs purchased by U.S. affiliates, with intermediate inputs being computed as the difference between total output (sales plus inventory change) and gross product (value added in production).[11] Alternatively, one could look at the domestic content of affiliates' purchased inputs—one minus the import-content share—which shows the share of affiliates' purchased inputs accounted for by their purchases from other U.S. companies. A broader measure of domestic content—the domestic content of total output—takes account of both affiliates' purchases of intermediate inputs from other U.S. companies and their employment of labor and other primary factors of production; it is measured as the share of total output accounted for by affiliates' domestic purchases and gross product combined.

In 1991, the import content of purchased inputs for all U.S. affiliates was 20 percent, and the domestic content was 80 percent (table 9). For manufacturing affiliates, 17 percent of the content was accounted for by imports, and 83 percent by domestic content. The domestic content of total output was 85 percent for all affiliates and 88 percent for manufacturing affiliates. Although U.S. affiliates' reliance on imported goods appears to be somewhat higher than that of domestic firms, U.S. affiliates' output nonetheless largely represents production in the United States by U.S. labor and other domestic inputs. Because the focus of this article is on trade, the remainder of this section focuses on the import content of purchased inputs.

Table 9 shows the import-content shares for U.S. affiliates by broad industry of affiliate in 1987–91. Shown for comparison, as a proxy for the import-content share of domestically owned U.S. businesses, is the import-content share of U.S. parent companies of foreign affiliates in 1989.[12]

In 1989, the share of imports in purchased inputs for U.S. affiliates (20 percent) was about twice as large as the share for U.S. parent companies (9 percent). This difference partly reflects industry mix—in particular, the fact that companies in wholesale trade, which had the highest import share among the major industry divisions, accounted for 40 percent of total U.S.-affiliate purchases but for only 10 percent of total U.S.-parent-company purchases. It also reflects the higher import-content shares of U.S. affiliates relative to U.S. parent companies in some industries, particularly wholesale trade, petroleum, and manufacturing.

The import-content shares for U.S. affiliates and U.S. parent companies in wholesale trade were 35 percent and 17 percent, respectively.[13] The comparable shares in petroleum were 20 percent and 11 percent.

11. This measure captures direct (or first-round) imports only; it excludes imports embodied in purchases from domestic distributors and manufacturers. It also excludes any purchases of services from foreigners because the data for imports are for merchandise imports only. It should be noted that a small upward bias in the measure may exist to the extent that the numerator of the ratio includes imports of capital equipment for use in affiliate production, which—not being an intermediate input embodied in total output—is excluded from the denominator. For most U.S. affiliates, however, it is likely that only a negligible share of their total imports consisted of capital equipment.

12. The share is computed from data from BEA's 1989 benchmark survey of U.S. direct investment abroad. In the absence of industry-level data on imported inputs by all U.S. businesses, the import-content share for U.S. parent companies is the best available measure for domestically owned U.S. businesses. In the petroleum and manufacturing industries, in which U.S. parent companies have accounted for a dominant share of total industry gross product, the shares for U.S. parent companies can be taken to be representative of that for large domestically owned businesses in general.

13. The share for wholesale trade affiliates is only 35 percent because this group includes some wholesale trade affiliates (such as the French-owned grain traders and the affiliates of Japanese trading companies) that export considerably more than they import. As a result, the share of imports in purchases for the industry as a whole is much lower than that for many individual affiliates.

Table 9.—Share of Imports in Total Purchased Inputs of U.S. Affiliates, by Industry of Affiliate, 1987–91

[Percent]

	1987	1988	1989	1990	1991 p	Addendum: Share for U.S. parent companies 1989
All industries	24.2	22.0	20.4	19.4	19.6	8.6
Petroleum	16.8	14.7	20.3	20.4	19.5	10.9
Manufacturing	16.0	16.6	16.1	16.7	17.3	11.3
Food and kindred products	9.9	8.7	7.2	6.6	8.0	2.8
Chemicals and allied products	11.1	12.4	12.3	12.1	13.2	8.8
Primary and fabricated metals	18.8	14.2	13.0	14.0	14.1	8.3
Machinery	26.5	28.3	27.5	30.8	29.4	16.5
Machinery, except electrical	30.3	21.3	22.4	31.0	30.4	17.9
Electric and electronic equipment	24.7	33.3	32.7	30.7	28.6	14.8
Other manufacturing	15.1	16.3	17.1	16.5	18.2	13.0
Transportation equipment	38.3	42.7	42.4	36.0	39.5	19.2
Other	11.3	11.9	10.3	11.2	12.1	5.2
Wholesale trade	41.0	37.2	35.0	32.3	33.9	17.0
Retail trade	5.6	4.6	3.2	3.6	3.6	4.7
Finance (except banking), insurance, and real estate	.1	(*)	(*)	(*)	(*)	.3
Services	1.0	4.0	1.2	1.3	1.0	.6
Other industries	3.0	2.9	2.3	2.4	2.7	1.9

* Less than 0.05 percent.
p Preliminary.

In manufacturing, the difference between the import-content shares for U.S. affiliates and U.S. parent companies was more modest (16 percent, compared with 11 percent). In all manufacturing industries shown in table 9, the import-content share for U.S. affiliates was higher than that for U.S. parent companies; it was more than twice as high in three industries—food and kindred products, electric and electronic equipment, and transportation equipment.

For total manufacturing and for each of the industries within manufacturing shown in table 9, the import-content share for affiliates changed little in 1987–91. This result does not necessarily refute the proposition that foreign-owned manufacturers tend to purchase more of their inputs from domestic sources as they mature: Because there was substantial new direct investment in U.S. manufacturing industries in 1987–90, the average age of U.S. manufacturing affiliates may not have increased during this period.

The import-content share for U.S. affiliates in all industries shows a modest decline in 1987–90 because of a drop in the share for affiliates

Table 10.—Share of Imports in Total Purchased Inputs of U.S. Affiliates, by Industry and by Country of UBO, 1990 and 1991

[Percent]

	All countries		Canada		France		Germany		Japan		Netherlands		Switzerland		United Kingdom	
	1990	1991 P	1990	1991 P	1990	1991 P	1990	1991 P	1990	1991 P	1990	1991 P	1990	1991 P	1990	1991 P
All industries	**19.4**	**19.6**	**12.7**	**12.7**	**12.1**	**10.7**	**21.6**	**19.9**	**30.2**	**31.7**	**12.3**	**11.5**	**10.4**	**10.1**	**9.6**	**9.2**
Petroleum	**20.4**	**19.5**	(D)	(D)	(D)	(D)	(D)	(D)	**0**	**0**	(D)	(D)	(D)	(D)	(D)	(D)
Petroleum and coal products manufacturing	19.1	17.1	(D)	(D)	(D)	(D)	0	0	0	0	(D)	(D)	0	0	(D)	(D)
Other	22.2	22.6	38.2	34.6	(D)	(D)	(D)	(D)	0	0	(D)	(D)	(D)	(D)	(D)	0
Manufacturing	**16.7**	**17.3**	**15.7**	**16.5**	**17.3**	**16.2**	**21.4**	**20.9**	**28.4**	**28.0**	**14.4**	**14.0**	**10.5**	**11.9**	**9.4**	**10.0**
Food and kindred products	6.6	8.0	15.2	18.6	7.3	7.4	9.6	7.4	2.4	3.2	1.5	1.7	(D)	(D)	8.2	9.1
Beverages	5.6	6.6	(D)	(D)	(D)	(D)	(D)	7.4	2.1	3.7	n.a.	n.a.	(D)	(D)	(D)	(D)
Other	7.0	8.6	6.0	9.2	6.8	6.7	(D)	7.0	2.4	3.1	1.5	1.7	(D)	(D)	8.7	(D)
Chemicals and allied products	12.1	13.2	(D)	(D)	9.6	9.5	18.4	18.5	5.1	7.2	3.4	3.1	15.8	17.4	11.6	13.2
Industrial chemicals and synthetics	12.9	14.5	(D)	(D)	(D)	(D)	21.2	22.5	4.2	6.0	(D)	(D)	21.2	21.4	(D)	(D)
Drugs	15.4	17.4	0	0	(D)	(D)	10.7	(D)	3.2	3.8	(D)	1.0	17.3	18.8	(D)	(D)
Soap, cleaners, and toilet goods	3.0	2.7	(D)	(D)	(D)	(D)	1.4	1.0	5.1	7.9	(D)	(D)	(D)	(D)	(D)	(D)
Other	15.7	14.1	3.6	6.0	(D)	7.0	19.1	(D)	15.0	18.5	(D)	(D)	12.1	11.9	(D)	(D)
Primary and fabricated metals	14.0	14.1	26.7	(D)	7.3	6.9	20.0	21.4	6.6	5.9	4.1	2.2	18.9	13.5	7.2	7.3
Primary metal industries	15.2	16.0	(D)	29.0	8.8	11.2	24.2	21.9	5.3	3.7	n.a.	0	(D)	(D)	(D)	7.6
Ferrous	7.9	10.3	8.4	11.6	(D)	(D)	(1)	53.2	4.7	2.8	n.a.	0	n.a.	n.a.	1.4	(D)
Nonferrous	22.4	22.5	(D)	(D)	(D)	(D)	16.6	12.8	16.0	17.9	n.a.	n.a.	(D)	(D)	(D)	(D)
Fabricated metal products	11.1	10.4	(D)	(D)	(D)	(D)	18.4	21.2	18.6	20.9	4.1	2.2	(D)	(D)	(D)	6.5
Machinery	30.8	29.4	22.7	21.5	49.2	33.3	37.5	33.5	46.7	43.1	(D)	(D)	12.2	13.8	12.1	11.5
Machinery, except electrical	31.0	30.4	(D)	(D)	(D)	20.3	25.9	25.5	48.5	45.3	20.8	21.8	19.3	21.1	12.9	9.5
Computer and office equipment	45.5	45.5	5.2	(D)	(D)	(D)	.7	.6	62.1	58.3	4.9	3.1	(D)	(D)	(D)	(D)
Other	22.7	22.8	17.8	11.2	(D)	15.5	27.4	27.2	32.0	30.1	30.2	29.8	(D)	(D)	(D)	7.8
Electric and electronic equipment	30.7	28.6	(D)	(D)	(D)	37.5	43.7	39.2	41.4	38.1	(D)	(D)	(D)	(D)	11.3	14.3
Audio, video, and communications equipment	46.6	43.4	(D)	(D)	(D)	(D)	0	(D)	51.1	50.2	(D)	(D)	(D)	(D)	12.9	(D)
Electronic components and accessories	35.2	31.1	(D)	9.8	(D)	(D)	(D)	43.7	43.5	39.2	1.0	.9	15.5	(D)	20.0	25.7
Other	16.5	18.0	10.3	(D)	(D)	(D)	(D)	(D)	26.7	32.5	18.9	24.4	(D)	(D)	6.1	(D)
Other manufacturing	16.5	18.2	12.0	11.9	14.9	17.1	14.1	14.8	36.4	36.9	12.6	11.4	(D)	(D)	7.5	7.8
Textile products and apparel	10.5	10.3	(D)	2.9	25.0	25.2	21.6	23.6	12.7	10.4	(1)	17.7	1.0	3.3	4.3	3.4
Lumber, wood, furniture and fixtures	9.4	7.9	18.6	8.5	29.9	2.6	7.0	5.6	20.1	12.5	n.a.	n.a.	26.8	9.9	1.7	1.0
Paper and allied products	13.0	13.8	37.1	(D)	.2	(D)	23.5	23.0	(D)	(D)	(D)	0	(D)	(D)	(D)	(D)
Printing and publishing	1.7	2.8	1.7	4.4	(D)	(D)	1.5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.8	2.1
Newspapers	(D)	(D)	(D)	(D)	n.a.	n.a.	0	0	0	0	n.a.	n.a.	n.a.	n.a.	(D)	(D)
Other	(D)	(D)	(D)	(D)	(D)	(D)	1.5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Rubber products	18.7	22.1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	48.3	65.8	(D)	(D)
Miscellaneous plastics products	18.2	11.7	(D)	(D)	5.3	6.7	(D)	9.9	27.9	12.6	(D)	(D)	34.2	46.7	1.6	2.5
Stone, clay, and glass products	8.5	8.1	(D)	(D)	9.0	9.4	19.4	17.5	16.0	14.2	19.0	12.2	8.9	9.5	(D)	(D)
Transportation equipment	36.0	39.5	(D)	(D)	22.4	27.4	(D)	32.5	49.2	52.7	(D)	0	21.5	n.a.	19.7	31.2
Motor vehicles and equipment	40.4	45.1	(D)	(D)	(D)	(D)	(D)	(D)	49.3	52.8	n.a.	n.a.	21.5	n.a.	(D)	(D)
Other transportation equipment, nec	16.3	16.7	1.5	(D)	(D)	(D)	(D)	(D)	10.4	9.4	(D)	0	n.a.	n.a.	(D)	(D)
Instruments and related products	14.6	12.8	(D)	(D)	28.7	26.5	19.2	22.6	24.0	25.9	35.6	35.1	26.1	24.0	9.4	6.9
Other	17.0	31.9	(D)	13.7	20.7	(D)	19.8	6.7	(D)	37.9	79.6	74.5	(D)	(D)	(D)	(D)
Wholesale trade	**32.3**	**33.9**	**44.6**	**39.8**	**11.6**	**12.1**	**39.9**	**39.6**	**34.6**	**38.3**	(D)	**19.9**	**21.6**	**19.7**	**15.3**	**12.2**
Retail trade	**3.6**	**3.6**	(D)	**2.0**	**1.9**	**1.7**	**3.1**	**3.5**	**14.6**	**3.2**	(D)	**3.8**	(D)	(D)	**3.7**	**5.8**
Finance, except banking	(*)	(*)	**0**	**0**	**.7**	**.5**	**0**	**0**	(*)	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Insurance	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Real estate	(*)	(*)	(*)	(*)	**0**	**0**	**.1**	**.1**	(*)	**.1**	**0**	**0**	**0**	**0**	**0**	**0**
Services	**1.3**	**1.0**	**1.1**	**1.1**	(D)	(D)	**.8**	**.5**	**.7**	**.8**	**.4**	(*)	**0**	**0**	**1.4**	**.9**
Other Industries	**2.4**	**2.7**	**2.8**	(D)	(D)	**2.7**	(D)	(D)	**.2**	**.4**	(D)	(D)	(D)	(D)	(D)	**.7**

* Less than 0.05 percent.
P Preliminary.
D Suppressed to avoid disclosure of data of individual companies.
n.a. No affiliates in cell.
1. Computed ratio in cell is distorted by the exit in 1990 of one or more affiliates that were very large in 1989.
UBO Ultimate beneficial owner

in wholesale trade. The drop for wholesale trade affiliates, which mirrors the drop in their import/export ratio shown in table 2, can be attributed mainly to a reduction in U.S. consumer demand for imports following the decline of the dollar in foreign exchange markets in the late 1980's.

Table 10 presents import-content shares in more detail by industry for all affiliates and for affiliates of each of the seven major investing countries. Within manufacturing, imports generally have constituted a large share of the affiliate purchases in the machinery and transportation equipment industries—industries in which purchased inputs consist mainly of manufactured components rather than raw materials. In contrast, the share was quite low for affiliates in industries that intensively use raw materials subject to high transportation costs. Such industries include beverages; primary ferrous metals; lumber, wood, furniture, and fixtures; and stone, clay, and glass products.

The shares shown in table 10 are supplemented by frequency distributions for each of the seven major investing countries in table 11; the frequency distributions show the number of manufacturing industries that appear in each of six size ranges for the affiliates' import-content share. The distributions in the upper portion of the table are across the 26 most detailed manufacturing industries shown in table 10. The lower portion of the table shows distributions across the eight industries in machinery, transportation equipment, and instruments—industries characterized by high shares of manufactured components in total purchased inputs.

Among affiliates of the major investing countries, Japanese-owned affiliates had high import-content shares in the largest number of industries. In 1991, the share for Japanese-owned affiliates exceeded 30 percent in 7 of the 26 industries. It was 50 percent or more in computer and office equipment; audio, video, and communications equipment; and motor vehicles and equipment. For motor vehicles and equipment, the share was somewhat lower in 1991—53 percent—than it had been in earlier years—56 percent in 1989 and 63 percent in 1988.

Affiliates of the other major investing countries show high import-content shares in relatively few industries. The share was less than 10 percent in more than one-half of the industries with direct investment activity for affiliates with UBO's in Canada, the Netherlands, and the United Kingdom. For Canadian- and British-owned affiliates, the share was less than 20 percent in most of the eight industries in machinery, transportation equipment, and instruments, indicating a tendency by these affiliates to purchase manufactured components from domestic rather than foreign suppliers.

Table 11.—U.S. Affiliates of All Countries and of Seven Major Investing Countries: Number of Manufacturing Industries Distributed by Size of Affiliate Share of Imports in Total Purchased Inputs, 1990 and 1991

[Number of industries]

Share of imports in total purchased inputs (percent)	All countries		Canada		France		Germany		Japan		Netherlands		Switzerland		United Kingdom	
	1990	1991 p	1990	1991 p	1990	1991 p	1990	1991 p	1990	1991 p	1990	1991 p	1990	1991 p	1990	1991 p
All manufacturing industries (26 industries):																
0–9.9	8	7	14	13	10	9	8	12	9	10	11	12	8	8	15	18
10.0–19.9	12	11	6	7	7	6	10	4	6	7	3	3	6	7	9	4
20.0–29.9	2	3	2	2	5	6	4	6	5	2	1	3	5	3	1	3
30.0–39.9	1	2	3	3	0	1	0	2	1	4	2	1	1	1	0	0
40.0–49.9	3	3	1	0	2	0	2	1	2	0	1	1	2	2	1	0
50.0 or more	0	0	0	0	1	2	1	1	3	3	1	1	0	1	0	1
Addenda:																
Industries with no foreign direct investment	0	0	0	0	1	1	0	0	0	0	6	5	3	4	0	0
Industries for which computed ratio is not meaningful	0	0	0	1	0	1	1	0	0	0	1	0	1	0	0	0
Machinery, transportation equipment and instruments industries (8 industries):																
0–9.9	0	0	4	4	0	1	3	3	0	1	2	3	2	1	1	4
10.0–19.9	3	3	3	3	5	2	1	0	1	0	1	0	2	2	4	1
20.0–29.9	1	1	1	1	1	3	1	2	2	1	1	2	3	2	1	2
30.0–39.9	1	1	0	0	0	0	0	2	1	3	2	1	0	1	0	0
40.0–49.9	3	3	0	0	1	0	2	1	2	0	1	1	0	0	1	0
50.0 or more	0	0	0	0	1	2	1	0	2	3	0	0	0	0	0	1
Addendum:																
Industries with no foreign direct investment	0	0	0	0	0	0	0	0	0	0	1	1	1	2	0	0

p Preliminary.

U.S. Intrafirm Trade in Goods

By William J. Zeile

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CROSS-BORDER TRANSACTIONS between affiliated units of multinational companies account for a major share of U.S. international trade in goods. In 1994, these transactions—commonly referred to as "intrafirm trade"—accounted for more than one-third of U.S. exports of goods and for more than two-fifths of U.S. imports of goods.

As an aspect of the growing integration of the world economy, intrafirm trade has attracted considerable interest in recent years, particularly in the wake of the surge in international direct investment in the late 1980's.[1] Intrafirm trade plays a critical role in the operations of multinational companies (MNC's): It may help an MNC to reduce the costs of distributing goods abroad or of acquiring inputs from abroad or to integrate production processes on a global scale. Intrafirm trade may respond differently than trade between unrelated parties to changes in economic conditions; for example, it may—at least in the short term—be more insulated from competitive forces in particular markets or from overall changes in prices, exchange rates, or general economic conditions. Furthermore, the prices—often termed "transfer prices"—that govern intrafirm trade may have their own unique characteristics and determinants.

In a previous SURVEY OF CURRENT BUSINESS article, BEA presented aggregate estimates of U.S. intrafirm exports and imports of goods and services for 1982–93.[2] A disaggregation of the intrafirm-export and -import totals into the trade between U.S. parent companies and their foreign affiliates and the trade between foreign-owned U.S. affiliates and their foreign parent groups showed that intrafirm exports largely consisted of transactions by U.S. MNC's, whereas intrafirm imports largely consisted of transactions by foreign MNC's.

This article presents a more detailed examination of U.S. intrafirm trade in goods by U.S. MNC's and by foreign MNC's operating in the United States.[3] The intrafirm transactions are disaggregated by industry of affiliate, by country of destination or origin, and for foreign MNC's, by country of ownership.

In much of the discussion, the U.S. intrafirm trade of U.S. MNC's and of foreign MNC's is examined separately. This separation is warranted not only by the difference in the ownership of the investments (that is, whether it is U.S. or foreign) but also by a fundamental difference in the role that intrafirm trade has played in the operations of the MNC's: The intrafirm trade of U.S. MNC's has mainly been connected with manufacturing production by foreign affiliates, while the U.S. intrafirm trade of foreign MNC's has mainly been connected with marketing and distribution activities.

The following are highlights from the article:

- The intrafirm-trade shares of U.S. exports and imports of goods have changed little over the past two decades. For U.S. exports, the intrafirm-trade shares of both U.S. MNC's and foreign MNC's have fluctuated, with no sustained trend. For U.S. imports, an increase in the share of foreign MNC's was offset by a decrease in the share of U.S. MNC's.
- The intrafirm-trade share of the total trade of U.S. parent companies has increased markedly since 1982. However, because of a pronounced decline in the parents' share of total U.S. trade in goods, the share of U.S. goods trade accounted for by the intrafirm

1. For a discussion of the worldwide surge in direct investment after 1985, see Edward M. Graham and Paul R. Krugman, "The Surge in Foreign Direct Investment in the 1980s," in *Foreign Direct Investment*, edited by Kenneth A. Froot (Chicago: University of Chicago Press, 1993): 13–36. For examples of the attention given to intrafirm trade by international organizations, which have shown particular interest in this phenomenon, see United Nations Conference on Trade and Development, Division on Transnational Corporations and Investment, *World Investment Report 1995* (New York: United Nations, 1995): Chapter IV; and Marcos Bonturi and Kiichiro Fukasaku, "Globalization and Intra-firm Trade: An Empirical Note," in OECD *Economic Studies* 20 (Spring 1993): 145–159.

2. See "An Ownership-Based Disaggregation of the U.S. Current Account, 1982–93," SURVEY OF CURRENT BUSINESS 75 (October 1995): 52–61.

3. As shown in the October 1995 article, trade in goods has consistently accounted for more than 80 percent of U.S. intrafirm exports of goods and services and for more than 90 percent of U.S. intrafirm imports of goods and services.

trade of U.S. MNC's has remained relatively flat.

- Since 1982, the intrafirm trade of U.S. MNC's has mainly been with their foreign manufacturing affiliates. However, the manufacturing affiliates' share of the intrafirm exports of U.S. MNC's has decreased somewhat, while their share of the intrafirm imports has increased.
- The U.S. intrafirm trade of foreign MNC's has mainly been with their U.S. wholesale trade affiliates. The share of intrafirm trade with manufacturing affiliates has increased substantially since the mid-1980's, but it still accounted for less than one-third of both the U.S. intrafirm exports and imports of foreign MNC's in 1994.
- The intrafirm-trade shares of U.S. exports and imports of goods vary widely by trading partner. Among the top six U.S. export markets in 1992, the share ranged from 70 percent for Japan to 12 percent for Taiwan. Among the top six source-countries for U.S. imports, the share ranged from 71 percent for Japan to less than 10 percent for China and Taiwan.

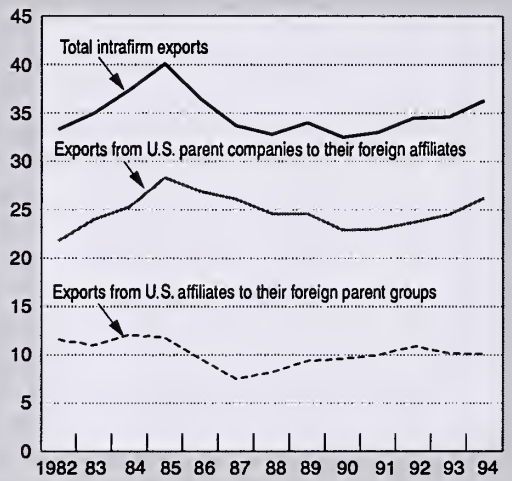
The remainder of this article consists of three parts. The first part discusses trends in the shares of U.S. exports and imports of goods that are accounted for by intrafirm trade and in the shares accounted for by the intrafirm trade of U.S. MNC's and of foreign MNC's. The second part discusses industry patterns in the intrafirm trade of U.S. MNC's and foreign MNC's and examines the industry patterns of intrafirm trade of foreign MNC's by country of ultimate beneficial owner (UBO).[4] The final part discusses the variation in intrafirm trade shares among U.S. trading partners and explores the relation between these shares and the per capita income levels of the partner countries.

Trends in Intrafirm Trade

Although fluctuating moderately during the past two decades, the shares of intrafirm trade—both by U.S. MNC's and by foreign MNC's—in U.S. exports and imports of goods have changed very little. In 1977 (the earliest year for which trade data for both U.S. MNC's and foreign MNC's are available), intrafirm trade accounted for 35 percent of U.S. exports and 44 percent of U.S. imports. From 1982 to 1993, the share for exports fluctuated between 32 percent and 40 percent (chart 1); the share for imports—having dropped

CHART 1

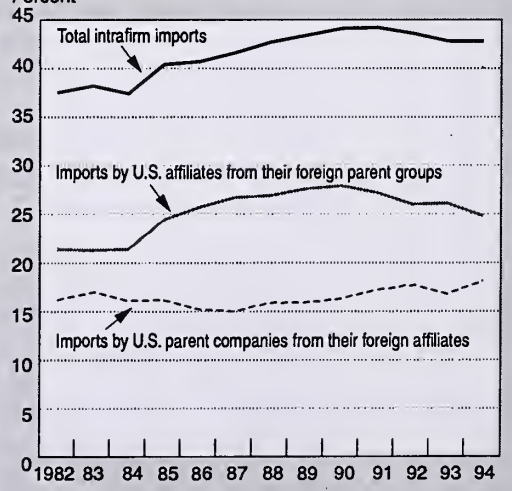
Shares of U.S. Exports Accounted for by Intrafirm Exports



U.S. Department of Commerce, Bureau of Economic Analysis

CHART 2

Shares of U.S. Imports Accounted for by Intrafirm Imports



U.S. Department of Commerce, Bureau of Economic Analysis

4. The UBO is that person, proceeding up a U.S. affiliate's ownership chain, beginning with and including the foreign parent, that is not owned more than 50 percent by another person. "Person" is broadly defined to include any individual, corporation, branch, partnership, associated group, association, estate, trust, or other organization and any government (including any corporation, institution, or other entity or instrumentality of a government). The foreign parent is the first foreign person in the affiliate's ownership chain. Unlike the foreign parent, the UBO of an affiliate is identified to ascertain the person that ultimately owns or controls the U.S. affiliate and that, therefore, ultimately derives the benefits from owning or controlling the affiliate.

sharply between 1977 and 1982—increased in most years in the 1980's (chart 2). By 1994 (the latest year for which data are available), the share for exports had risen slightly, to 36 percent, while the share for imports had declined slightly, to 43 percent (table 1, column 7).[5]

For both exports and imports, intrafirm trade has mainly consisted of shipments from parents to their affiliates rather than shipments to parents from their affiliates. U.S. intrafirm exports have mainly been accounted for by the intrafirm trade of U.S. MNC's—that is, shipments from U.S. parent companies to their foreign affiliates; the share in most years has ranged from two-thirds to three-fourths. Since 1982, U.S. intrafirm imports have mainly been accounted for by shipments from foreign parents and other member-firms of the foreign parent group to their U.S. affiliates.[6]

The share of total U.S. goods exports that is accounted for by the intrafirm trade of U.S. MNC's has fluctuated between 22 percent and 28 percent (table 1, column 8). The share increased substantially in 1982–85, decreased gradually in the late 1980's, and then increased gradually after 1990.[7]

5. The data for 1994 are preliminary.

6. The foreign parent group consists of (1) the foreign parent, (2) any foreign person, proceeding up the foreign parent's ownership chain, that owns more than 50 percent of the person below it, up to and including the UBO, and (3) any foreign person, proceeding down the ownership chain(s) of each of these members, that is owned more than 50 percent by the person above it.

7. The increase in share in 1982–85, when the dollar was appreciating in world currency markets, and the subsequent decrease in share in 1985–89, when the dollar was depreciating, might suggest that intrafirm exports were less sensitive to exchange-rate changes than were "arm's-length" exports (that is, exports involving unaffiliated parties). For 1985–89, however, Subramanian Rangan and Robert Z. Lawrence have determined that the apparent insensitivity at the aggregate level is due to industry-mix effects, so that once industry mix is taken into account, there is virtually no difference between the growth rates of intrafirm exports and of arm's-length exports; see "The Responses

Table 1.—Total U.S. Trade in Goods and Intrafirm Trade in Goods, 1977–94

	Millions of dollars					Percent					Addenda:		
		Intrafirm trade					Intrafirm trade				Intrafirm trade between U.S. parent companies and their foreign affiliates as a percentage of:		Intrafirm trade of U.S. affiliates as a percentage of their total trade
	Total [1]	Total	Between U.S. parent companies and their foreign affiliates	Between U.S. affiliates and their foreign parent groups	Other trade	Total	Total	Between U.S. parent companies and their foreign affiliates	Between U.S. affiliates and their foreign parent groups	Other trade	Total trade of U.S. parents	Total U.S. trade with foreign affiliates	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
U.S. exports:													
1977	123,182	43,010	31,319	11,691	80,172	100.0	34.9	25.4	9.5	65.1	33.9	76.8	47.0
1978	145,847	n.a.	n.a.	16,570	n.a.	100.0	n.a.	n.a.	11.4	n.a.	n.a.	n.a.	51.5
1979	186,363	n.a.	n.a.	22,073	n.a.	100.0	n.a.	n.a.	11.8	n.a.	n.a.	n.a.	49.8
1980	225,566	n.a.	n.a.	20,983	n.a.	100.0	n.a.	n.a.	9.3	n.a.	n.a.	n.a.	40.2
1981	238,715	n.a.	n.a.	26,911	n.a.	100.0	n.a.	n.a.	11.3	n.a.	n.a.	n.a.	42.0
1982	216,442	72,150	47,126	25,024	144,292	100.0	33.3	21.8	11.6	66.7	30.6	83.1	41.5
1983	205,639	71,974	49,397	22,577	133,665	100.0	35.0	24.0	11.0	65.0	33.8	85.8	41.9
1984	223,976	83,778	56,706	27,072	140,198	100.0	37.4	25.3	12.1	62.6	35.5	85.5	46.5
1985	218,815	87,752	61,852	25,900	131,063	100.0	40.1	28.3	11.8	59.9	37.7	88.8	45.9
1986	227,159	82,973	61,100	21,873	144,186	100.0	36.5	26.9	9.6	63.5	37.9	86.0	44.1
1987	254,122	85,523	66,414	19,109	168,599	100.0	33.7	26.1	7.5	66.3	39.9	84.2	39.7
1988	322,426	105,803	79,378	26,425	216,623	100.0	32.8	24.6	8.2	67.2	39.7	83.7	38.0
1989	363,812	123,714	89,438	34,276	240,098	100.0	34.0	24.6	9.4	66.0	40.1	87.2	39.7
1990	393,592	127,849	90,085	37,764	265,743	100.0	32.5	22.9	9.6	67.5	40.0	84.6	40.9
1991	421,730	139,346	97,124	42,222	282,384	100.0	33.0	23.0	10.0	67.0	40.5	84.2	43.6
1992	448,164	154,766	105,999	48,767	293,398	100.0	34.5	23.7	10.9	65.5	42.4	86.9	46.9
1993	465,091	161,112	113,762	47,350	303,979	100.0	34.6	24.5	10.2	65.4	44.3	86.4	44.4
1994	512,626	186,033	134,311	51,722	326,593	100.0	36.3	26.2	10.1	63.7	42.3	87.2	45.5
U.S. imports:													
1977	151,534	67,144	36,266	30,878	84,390	100.0	44.3	23.9	20.4	55.7	44.5	87.3	70.3
1978	176,052	n.a.	n.a.	39,466	n.a.	100.0	n.a.	n.a.	22.4	n.a.	n.a.	n.a.	69.8
1979	210,285	n.a.	n.a.	45,295	n.a.	100.0	n.a.	n.a.	21.5	n.a.	n.a.	n.a.	71.9
1980	245,262	n.a.	n.a.	47,010	n.a.	100.0	n.a.	n.a.	19.2	n.a.	n.a.	n.a.	62.0
1981	260,982	n.a.	n.a.	52,196	n.a.	100.0	n.a.	n.a.	20.0	n.a.	n.a.	n.a.	63.5
1982	243,952	91,203	39,288	51,915	152,749	100.0	37.4	16.1	21.3	62.6	36.2	76.4	61.6
1983	258,048	98,434	43,632	54,802	159,614	100.0	38.1	16.9	21.2	61.9	37.9	82.0	67.3
1984	330,678	123,244	52,793	70,451	207,434	100.0	37.3	16.0	21.3	62.7	38.9	83.8	70.1
1985	336,526	135,767	54,027	81,740	200,759	100.0	40.3	16.1	24.3	59.7	38.8	79.2	72.1
1986	365,438	148,430	55,012	93,418	217,008	100.0	40.6	15.1	25.6	59.4	40.2	84.0	74.3
1987	406,241	168,580	60,379	108,201	237,661	100.0	41.5	14.9	26.6	58.5	40.0	79.5	75.4
1988	440,952	187,853	69,491	118,362	253,099	100.0	42.6	15.8	26.8	57.4	42.6	79.6	76.1
1989	473,211	204,664	74,738	129,926	268,547	100.0	43.3	15.8	27.5	56.7	41.9	76.7	75.6
1990	495,310	217,757	80,299	137,458	277,553	100.0	44.0	16.2	27.8	56.0	41.9	78.6	75.1
1991	488,453	215,649	83,483	132,166	272,804	100.0	44.1	17.1	27.1	55.9	43.2	81.2	74.0
1992	532,665	231,692	93,893	137,799	300,973	100.0	43.5	17.6	25.9	56.5	45.8	86.7	74.7
1993	580,659	247,901	97,112	150,789	332,758	100.0	42.7	16.7	26.0	57.3	47.1	84.7	75.2
1994	663,256	283,504	119,438	164,066	379,752	100.0	42.7	18.0	24.7	57.3	49.6	91.8	74.9

n.a. Not available.
1. Data are from the Bureau of the Census.

The share of total U.S. goods imports that is accounted for by the intrafirm imports of U.S. MNC's has consistently been smaller than the corresponding share of exports. The share dropped sharply from 24 percent in 1977 to 16 percent in 1982; the drop can be largely attributed to a reduction in intrafirm imports from petroleum affiliates, partly as a result of transfers in the ownership of petroleum-producing assets in Middle Eastern countries to the host governments.[8] Since 1982, the import share has been quite stable (in the range of 15 to 18 percent).

Because the U.S.-parent-company share of total U.S. goods trade has declined since the early 1980's (chart 3), the share of U.S. goods trade accounted for by intrafirm trade of U.S. MNC's has not increased substantially, even though the share of total goods trade by U.S. parent companies accounted for by intrafirm trade has increased markedly. From 1982 to 1994, the share of U.S.-parent-company exports that were shipped to their foreign affiliates increased from 31 percent to 42 percent, while the share of U.S.-parent-company imports that were sourced from their foreign affiliates increased from 36 percent to 50 percent (chart 4 and table 1, column 11). The share of U.S. goods exports accounted for by U.S. parent companies decreased substantially in the late 1980's (when the U.S. dollar was depreciating in world currency markets), perhaps as a result of an increased export orientation on the part of smaller U.S. firms in response to new market opportunities overseas. The share of U.S. goods imports accounted for by U.S. parent companies (which include most major U.S. petroleum companies) decreased in the early 1980's, when the share of total U.S. goods imports accounted for by petroleum imports declined as a result of a decline in oil prices.

U.S. intrafirm exports of foreign MNC's have accounted for about 10 percent of total U.S. goods exports since 1977; the share has fluctuated between 7 percent and 12 percent (table 1, column 9). In most years before 1986, the share exceeded 11 percent, primarily reflecting the longstanding, dominant role played by Japanese-owned wholesale trade affiliates (particularly affiliates of Japan's largest general trading companies) in handling U.S. exports to Japan. (Japanese-owned affiliates accounted for most of the U.S. intrafirm exports of foreign MNC's throughout 1977–94.) The share dropped below 10 percent in 1986–90, despite

of U.S. Firms to Exchange Rate Fluctuations: Piercing the Corporate Veil," *Brookings Papers on Economic Activity* 2 (1993): 341–379.

8. In 1977, imports from petroleum affiliates accounted for 42 percent of the total goods imported by U.S. parents from their foreign affiliates. Although total U.S. imports of petroleum and products increased $17 billion from 1977 to 1982, imports by U.S. parents from petroleum affiliates decreased from $13.8 billion to $12.6 billion, and intrafirm imports from petroleum affiliates located in the member countries of the Organization of Petroleum Exporting Countries dropped from $7.9 billion to $5.0 billion.

CHART 3

Shares of U.S. Trade Accounted for by U.S. Parent Companies

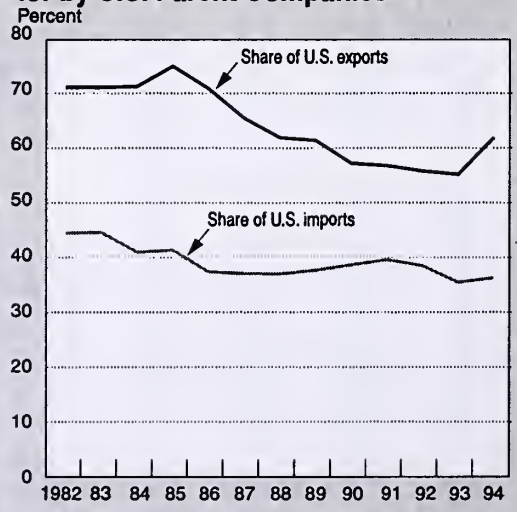


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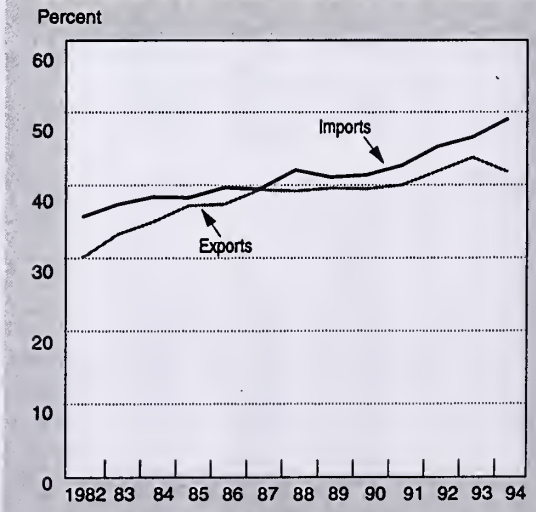
CHART 4

Intrafirm Trade Between U.S. Parent Companies and Their Foreign Affiliates as a Share of Total Trade of U.S. Parents



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the surge in direct investment in the United States, and it has hovered around 10 percent since then.

The U.S. intrafirm imports of foreign MNC's have accounted for a much larger share of total U.S. goods imports—about 20 percent or more—since 1977. The share of imports increased substantially in 1984–90—from 21 percent to 28 percent—but has declined somewhat since. Like exports, a very large share of the U.S. intrafirm imports of foreign MNC's has been accounted for by Japanese-owned affiliates.

Industry Patterns of Intrafirm Trade

The U.S. intrafirm trade of U.S. MNC's and the U.S. intrafirm trade of foreign MNC's have taken fundamentally different forms and have had quite different industry compositions. The intrafirm trade of U.S. MNC's can be viewed as an aspect of the international division of manufacturing production between affiliated parts of the MNC: For both exports and imports, most of this trade has been between U.S. manufacturing parents and their foreign manufacturing affiliates. The intrafirm exports to these manufacturing affiliates have mainly consisted of materials and components for further processing or assembly.[9] (Data on the intended use of U.S. imports from these foreign affiliates are not available.) In contrast, U.S. intrafirm trade of foreign MNC's has been connected largely with distribution and marketing activities: For both exports and imports, this trade has mainly been accounted for by U.S. wholesale trade affiliates. The imports by these affiliates from their foreign parent groups have consisted almost exclusively of goods for resale by the affiliates without further manufacture.[10] (Data on the in-

9. The data on the intended use of U.S. goods exported to majority-owned foreign affiliates are collected in BEA's benchmark survey of U.S. direct investment abroad. In each of the most recent benchmark survey years—1982, 1989, and 1994—at least three-fourths of the exports by U.S. parents to their majority-owned manufacturing affiliates were goods for further manufacture by the affiliates. In contrast, more than 90 percent of the intrafirm exports to majority-owned affiliates in wholesale trade were goods for resale without further manufacture.

10. The data on the intended use of U.S. goods imported by foreign-owned U.S. affiliates are collected in BEA's benchmark surveys of foreign

Table 2.—Intrafirm Trade in Goods Between U.S. Parent Companies and Their Majority-Owned Foreign Affiliates, by Major Industry of Affiliate, 1977 and 1982–94

	Millions of dollars				Percent				Addendum: Intrafirm trade as a percentage of total U.S. trade with MOFA's			
	All industries	Manufacturing	Wholesale trade	Petroleum and other industries	All industries	Manufacturing	Wholesale trade	Petroleum and other industries	All industries	Manufacturing	Wholesale trade	Petroleum and other industries
Exports to MOFA's:												
1977	29,275	20,510	6,607	2,158	100.0	70.1	22.6	7.4	81.7	81.6	86.6	71.1
1982	44,320	28,882	12,834	2,604	100.0	65.2	29.0	5.9	84.0	83.1	91.3	66.1
1983	45,107	31,304	11,588	2,215	100.0	69.4	25.7	4.9	82.8	83.4	88.6	57.8
1984	52,726	37,396	12,989	2,341	100.0	70.9	24.6	4.4	82.9	82.7	89.2	61.7
1985	57,567	40,513	14,640	2,414	100.0	70.4	25.4	4.2	86.6	86.0	92.9	66.5
1986	58,916	41,557	15,417	1,942	100.0	70.5	26.2	3.3	87.0	85.9	93.8	65.4
1987	65,248	45,516	17,559	2,173	100.0	69.8	26.9	3.3	87.1	85.8	94.8	65.6
1988	78,204	53,409	22,505	2,290	100.0	68.3	28.8	2.9	86.1	84.6	92.4	69.0
1989	86,050	57,707	25,247	3,096	100.0	67.1	29.3	3.6	88.3	86.8	94.2	73.7
1990	88,375	56,662	28,363	3,350	100.0	64.1	32.1	3.8	88.2	86.2	94.3	75.4
1991	95,779	62,915	29,128	3,736	100.0	65.7	30.4	3.9	88.0	86.2	94.0	76.8
1992	100,737	65,272	31,501	3,964	100.0	64.8	31.3	3.9	87.2	85.2	93.9	73.8
1993	106,827	66,051	37,091	3,685	100.0	61.8	34.7	3.4	86.1	82.5	94.6	75.9
1994	125,423	74,578	45,873	4,972	100.0	59.5	36.6	4.0	84.9	80.3	95.2	74.3
Imports from MOFA's:												
1977	30,880	14,492	1,322	15,066	100.0	46.9	4.3	48.8	81.3	82.1	78.6	80.7
1982	38,533	22,839	2,148	13,546	100.0	59.3	5.6	35.2	83.6	86.5	83.7	79.1
1983	41,551	27,584	2,679	11,288	100.0	66.4	6.4	27.2	86.0	88.1	87.2	80.9
1984	49,316	34,388	3,302	11,626	100.0	69.7	6.7	23.6	85.7	88.6	88.2	77.7
1985	51,751	36,687	3,433	11,631	100.0	70.9	6.6	22.5	85.8	88.7	78.0	80.0
1986	49,961	38,912	4,292	6,757	100.0	77.9	8.6	13.5	87.2	88.9	89.6	77.5
1987	55,867	41,492	5,629	8,746	100.0	74.3	10.1	15.7	85.2	87.5	85.9	75.7
1988	65,464	51,404	6,491	7,569	100.0	78.5	9.9	11.6	86.6	89.0	90.0	71.2
1989	71,283	57,070	6,069	8,144	100.0	80.1	8.5	11.4	84.6	87.6	80.4	70.3
1990	75,251	59,427	5,895	9,929	100.0	79.0	7.8	13.2	84.9	86.9	82.2	75.7
1991	77,578	60,448	7,178	9,952	100.0	77.9	9.3	12.8	85.7	87.9	82.9	76.0
1992	83,260	67,241	7,803	8,216	100.0	80.8	9.4	9.9	86.6	88.8	88.7	72.4
1993	93,205	76,579	8,677	7,949	100.0	82.2	9.3	8.5	86.3	89.0	89.4	65.0
1994	103,502	85,762	10,173	7,567	100.0	82.9	9.8	7.3	87.6	90.9	88.9	61.4

MOFA Majority-owned foreign affiliate

tended use of exports by these affiliates are not available.)

The rest of this section presents added detail on the pattern of U.S. intrafirm trade associated with U.S. and foreign MNC's by industry of affiliate. In this section, the discussion of the intrafirm trade of U.S. MNC's is necessarily restricted to the intrafirm trade between U.S. parent companies and their *majority-owned* foreign affiliates (MOFA's); however, in the aggregate, intrafirm trade with MOFA's accounts for a very high share of U.S. intrafirm trade with all foreign affiliates.[11]

direct investment in the United States. In each of the benchmark survey years—1980, 1987, and 1992—more than 90 percent of the imports received by U.S. wholesale trade affiliates from their foreign parent groups were goods for resale. In contrast, goods for resale accounted for less than one-third of the intrafirm imports by manufacturing affiliates.

11. In BEA's annual surveys of U.S. direct investment abroad, intrafirm-trade data by industry and by country of affiliate are collected only for MOFA's. (The data on intrafirm trade with all foreign affiliates, not broken down by industry or country of affiliate, are collected on reports for U.S. parent companies.) In 1977 and 1982–94, intrafirm trade between U.S. parents and their MOFA's accounted for more than 90 percent of the intrafirm exports to, and for more than 85 percent of the intrafirm imports from, all foreign affiliates.

Intrafirm trade with MOFA's

Since 1982, MOFA's in manufacturing have consistently accounted for a dominant share of both U.S. intrafirm exports to MOFA's and U.S. intrafirm imports from MOFA's (table 2). The share of intrafirm exports to MOFA's that is accounted for by manufacturing affiliates has declined somewhat since the mid-1980's, when it exceeded 70 percent, while the share of exports to wholesale trade affiliates has increased. In contrast, the share of intrafirm imports from MOFA's that is accounted for by manufacturing affiliates has increased markedly—from less than 50 percent in 1977 to more than 80 percent in 1994—while the share of imports from petroleum affiliates has declined.

Much of the intrafirm trade with manufacturing affiliates has consisted of trade with motor vehicle affiliates: In 1982–94, the share of total intrafirm trade with manufacturing MOFA's that was accounted for by motor vehicle affiliates ranged

Table 3.—Intrafirm Trade in Goods Between U.S. Affiliates of Foreign Companies and Their Foreign Parent Groups by Major Industry of Affiliate, 1977–94

	Millions of dollars				Percent				Addendum: Intrafirm trade of U.S. affiliates as a percentage of their total trade			
	All industries	Manufacturing	Wholesale trade	Petroleum and other industries	All industries	Manufacturing	Wholesale trade	Petroleum and other industries	All industries	Manufacturing	Wholesale trade	Petroleum and other industries
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Exports to foreign parent groups:												
1977	11,691	1,365	9,588	738	100.0	11.7	82.0	6.3	47.0	38.4	48.0	56.0
1978	16,570	1,597	13,977	996	100.0	9.6	84.4	6.0	51.5	35.3	54.0	56.9
1979	22,073	2,019	18,761	1,293	100.0	9.1	85.0	5.9	49.8	30.8	52.7	59.0
1980	20,983	2,643	17,258	1,082	100.0	12.6	82.2	5.2	40.2	29.2	42.4	44.4
1981	26,911	2,945	22,416	1,550	100.0	10.9	83.3	5.8	42.0	21.7	48.2	38.9
1982	25,024	3,112	20,341	1,571	100.0	12.4	81.3	6.3	41.5	24.2	46.9	39.1
1983	22,577	3,108	18,033	1,436	100.0	13.8	79.9	6.4	41.9	25.8	46.9	42.8
1984	27,072	3,713	22,117	1,242	100.0	13.7	81.7	4.6	46.5	28.4	54.6	27.2
1985	25,900	3,671	20,768	1,461	100.0	14.2	80.2	5.6	45.9	28.6	54.3	27.6
1986	21,873	3,894	16,661	1,318	100.0	17.8	76.2	6.0	44.1	30.4	49.4	43.5
1987	19,109	4,491	13,370	1,248	100.0	23.5	70.0	6.5	39.7	29.0	45.8	36.3
1988	26,425	6,544	18,257	1,624	100.0	24.8	69.1	6.1	38.0	26.0	45.6	37.6
1989	34,276	7,926	24,782	1,568	100.0	23.1	72.3	4.6	39.7	24.9	50.5	29.3
1990	37,764	9,067	26,636	2,061	100.0	24.0	70.5	5.5	40.9	25.1	53.4	32.6
1991	42,222	10,445	28,887	2,890	100.0	24.7	68.4	6.8	43.6	27.7	55.2	41.8
1992	48,767	11,574	34,612	2,581	100.0	23.7	71.0	5.3	46.9	28.7	62.2	32.4
1993	47,350	12,092	33,336	1,922	100.0	25.5	70.4	4.1	44.4	27.8	59.5	26.7
1994	51,722	13,827	35,513	2,382	100.0	26.7	68.7	4.6	45.5	28.6	62.2	28.7
Imports from foreign parent groups:												
1977	30,878	4,512	23,791	2,575	100.0	14.6	77.0	8.3	70.3	80.2	75.8	37.3
1978	39,466	5,761	31,453	2,252	100.0	14.6	79.7	5.7	69.8	80.1	73.6	33.9
1979	45,295	6,444	36,082	2,769	100.0	14.2	79.7	6.1	71.9	74.3	79.1	31.6
1980	47,010	7,808	36,068	3,134	100.0	16.6	76.7	6.7	62.0	75.0	66.8	27.6
1981	52,196	8,019	41,981	2,196	100.0	15.4	80.4	4.2	63.5	60.6	72.5	19.7
1982	51,915	7,680	41,083	3,152	100.0	14.8	79.1	6.1	61.6	62.0	66.6	30.8
1983	54,802	9,202	43,208	2,392	100.0	16.8	78.8	4.4	67.3	65.6	73.2	28.5
1984	70,451	11,397	57,071	1,983	100.0	16.2	81.0	2.8	70.1	62.7	78.7	20.2
1985	81,740	12,432	66,898	2,410	100.0	15.2	81.8	2.9	72.1	66.7	79.1	23.8
1986	93,418	14,626	75,498	3,294	100.0	15.7	80.8	3.5	74.3	70.9	79.9	31.1
1987	108,201	17,570	85,092	5,539	100.0	16.2	78.6	5.1	75.4	71.6	79.3	47.3
1988	118,362	21,952	90,649	5,761	100.0	18.5	76.6	4.9	76.1	67.0	81.3	51.0
1989	129,926	27,587	93,243	9,096	100.0	21.2	71.8	7.0	75.6	67.5	81.8	53.7
1990	137,458	33,221	91,441	12,796	100.0	24.2	66.5	9.3	75.1	70.4	80.5	57.8
1991	132,166	32,730	88,289	11,147	100.0	24.8	66.8	8.4	74.0	69.6	78.9	56.2
1992	137,799	37,259	89,202	11,338	100.0	27.0	64.7	8.2	74.7	69.9	81.4	52.8
1993	150,789	39,866	99,649	11,274	100.0	26.4	66.1	7.5	75.2	66.9	83.2	52.8
1994	164,066	45,105	109,634	9,327	100.0	27.5	66.8	5.7	74.9	67.3	83.5	44.6

from 38 to 48 percent for exports and from 44 to 54 percent for imports. Much of this trade was with affiliates in Canada, reflecting the large volume of auto-related trade since the U.S.-Canada Automobile Agreement of 1965. Intrafirm trade with affiliates in machinery industries (industrial and electronic and other electric machinery manufacturing) has also been substantial, accounting for 27 to 32 percent of intrafirm exports to, and for 30 to 37 percent of intrafirm imports from, manufacturing MOFA's.

The share of intrafirm exports that was to MOFA's in wholesale trade increased substantially in 1984–94—from 25 percent to 37 percent. Much of this trade was in machinery products.[12]

In 1977, petroleum affiliates accounted for 49 percent of total intrafirm imports from MOFA's; however, by 1982, their share had dropped to 35 percent, partly as a result of the transfers in the ownership of petroleum-producing assets in Middle Eastern countries to host governments. The share continued to decline in 1982–86, reflecting a fall in the U.S.-import price of crude oil.

Intrafirm trade of U.S. affiliates

Unlike the intrafirm trade of U.S. MNC's, which has been dominated by trade with manufacturing affiliates, the intrafirm trade of foreign MNC's—between U.S. affiliates and their foreign parent groups—has been mostly with wholesale trade affiliates. Through the mid-1980's, these affiliates accounted for more than three-fourths of the intrafirm exports and imports of foreign-owned U.S. affiliates; in more recent years, the share has been closer to two-thirds (table 3).

Until recently, the intrafirm exports by wholesale trade affiliates largely consisted of homogeneous commodities—such as food and crude materials—shipped by affiliates of Japan's general trading companies or by French-owned affiliates specializing in farm products.[13] The share of the intrafirm exports of wholesale trade affiliates that was accounted for by food and crude materials was 59 percent in 1980 and 50 percent in 1987 (table 4). By 1992, however, this share had declined to 41 percent, reflecting an increase in the importance of manufactured goods in intrafirm exports.

In contrast, the intrafirm imports of wholesale trade affiliates have mainly consisted of heterogeneous manufactured products, such as machinery products or road vehicles and parts. For such products, a local presence in the form of wholesale trade affiliates may be required to provide specialized after-sales service or to obtain continuous feedback on customer requirements and tastes. Most of these affiliates were set up by for-

12. In each of the most recent benchmark survey years—1982, 1989, and 1992—machinery exports accounted for more than one-half of the intrafirm exports to MOFA's in wholesale trade. (Data on U.S. trade with MOFA's by product are collected only in benchmark survey years.)

13. Japan's largest general trading companies have historically handled a substantial share of Japan's imports of bulk commodities from other countries. See Alexander K. Young, *The Sogo Shosha: Japan's Multinational Trading Companies* (Boulder, Colorado: Westview Press, 1979).

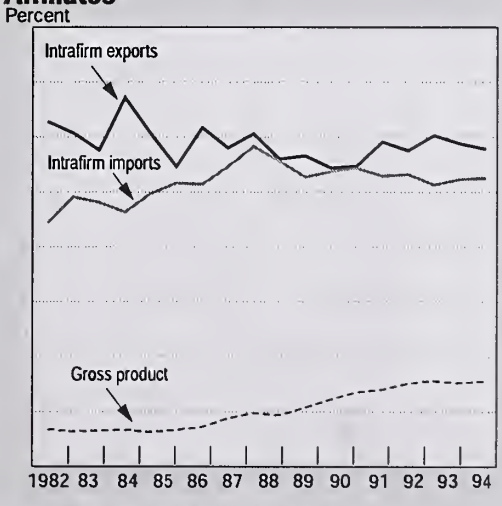
Table 4.—Intrafirm Trade in Goods Between U.S. Wholesale Trade Affiliates and Their Foreign Parent Groups, by Product, for Selected Years

	Millions of dollars			Percent		
	1980	1987	1992	1980	1987	1992
Exports, total	17,258	13,370	34,612	100.0	100.0	100.0
Food	6,246	3,708	8,772	36.2	27.7	25.3
Crude materials, inedible, except fuels	3,910	3,029	5,280	22.7	22.7	15.3
Chemicals	953	1,057	2,422	5.5	7.9	7.0
Machinery	1,436	1,676	5,745	8.3	12.5	16.6
Road vehicles and parts	203	236	2,156	1.2	1.8	6.2
Other transport equipment	397	(D)	2,698	2.3	(D)	7.8
Metal manufactures	1,068	734	1,463	6.2	5.5	4.2
Other	3,045	(D)	6,076	17.6	(D)	17.6
Imports, total	36,068	85,092	89,202	100.0	100.0	100.0
Food	1,692	1,888	1,532	4.7	2.2	1.7
Crude materials, inedible, except fuels	836	1,526	2,059	2.3	1.8	2.3
Chemicals	827	1,403	2,595	2.3	1.6	2.9
Machinery	7,606	25,526	33,489	21.1	30.0	37.5
Road vehicles and parts	(D)	39,340	27,639	(D)	46.2	31.0
Other transport equipment	511	396	1,960	1.4	0.5	2.2
Metal manufactures	5,682	4,607	4,891	15.8	5.4	5.5
Other	(D)	10,406	15,037	(D)	12.2	16.9

D Suppressed to avoid the disclosure of data of individual companies.

CHART 5

Share of U.S. Affiliate Intrafirm Exports, Intrafirm Imports, and Gross Product Accounted for by Japanese-Owned Affiliates



U.S. Department of Commerce, Bureau of Economic Analysis

eign manufacturers to facilitate the marketing of their own products; in most years, intrafirm imports from their foreign parents have accounted for more than three-fourths of the total imports by these affiliates (table 3, column 11).

The shares of U.S.-affiliate intrafirm exports and imports accounted for by manufacturing affiliates have increased substantially. For exports, the share increased gradually from 12 percent in 1977 to 27 percent in 1994. For imports, the increase largely coincided with the surge in foreign direct investment in U.S. manufacturing industries in the mid-to-late 1980's; the share increased from 15 percent in 1985 to 27 percent in 1992.[14]

Within manufacturing, the industry composition of intrafirm trade with U.S. affiliates has been somewhat more diversified than that of intrafirm trade with MOFA's; however, affiliates in chemicals and in electronic and other electric equipment have generally accounted for the largest shares of intrafirm exports and imports by U.S. manufacturing affiliates.[15]

By country of UBO.—Since 1977, affiliates with UBO's in Japan have accounted for a dominant share of U.S.-affiliate intrafirm exports: The

14. The share of total U.S. goods imports that was accounted for by the intrafirm imports by U.S. manufacturing affiliates also increased—from 4 percent in 1985 to 7 percent in 1992. The share of intrafirm exports by U.S. manufacturing affiliates increased from 1 percent in 1977 to 3 percent in 1994.

15. In 1977–94, the share for affiliates in chemicals remained in the range of 27 to 37 percent for exports and 18 to 22 percent for imports. The share for affiliates in electronic equipment was less stable, fluctuating in the range of 12 to 30 percent for exports and 17 to 25 percent for imports.

Table 5.—Intrafirm Trade in Goods Between U.S. Affiliates and Their Foreign Parent Groups, by Major Industry of Affiliate and by Country of UBO, for Selected Years

	Millions of dollars								Percent of all-countries total							
	Exports to foreign parent groups				Imports from foreign parent groups				Exports				Imports			
	1984	1988	1992	1994	1984	1988	1992	1994	1984	1988	1992	1994	1984	1988	1992	1994
All Industries:																
All countries	27,072	26,425	48,767	51,722	70,451	118,362	137,799	164,066	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Canada	881	1,109	1,569	1,835	4,844	6,899	7,125	8,237	3.3	4.2	3.2	3.5	6.9	5.8	5.2	5.0
France	4,367	1,283	4,219	5,140	2,801	4,486	4,673	5,368	16.1	4.9	8.7	9.9	4.0	3.8	3.4	3.3
Germany	1,050	1,795	2,471	2,778	9,324	13,835	15,422	18,840	3.9	6.8	5.1	5.4	13.2	11.7	11.2	11.5
Netherlands	765	1,405	1,546	1,773	1,314	2,237	4,297	4,095	2.8	5.3	3.2	3.4	1.9	1.9	3.1	2.5
Sweden	176	289	404	791	2,581	4,168	3,798	4,288	.7	1.1	.8	1.5	3.7	3.5	2.8	2.6
Switzerland	771	757	1,417	1,850	1,507	3,829	3,877	4,830	2.8	2.9	2.9	3.6	2.1	3.2	2.8	2.9
United Kingdom	854	1,291	2,170	2,051	3,479	5,594	6,804	7,446	3.2	4.9	4.4	4.0	4.9	4.7	4.9	4.5
Japan	15,775	14,463	29,551	30,049	38,688	63,903	71,152	86,674	58.3	54.7	60.6	58.1	54.9	54.0	51.6	52.8
Korea, Republic of	555	1,400	1,305	1,271	1,387	4,542	3,857	6,563	2.0	5.3	2.7	2.5	2.0	3.8	2.8	4.0
Other countries	1,877	2,634	4,115	4,184	4,525	8,869	16,794	17,725	6.9	10.0	8.4	8.1	6.4	7.5	12.2	10.8
Manufacturing:																
All countries	3,713	6,544	11,574	13,827	11,397	21,952	37,259	45,105	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Canada	434	503	1,055	1,345	2,285	2,962	3,706	4,670	11.7	7.7	9.1	9.7	20.0	13.5	9.9	10.4
France	150	527	1,014	(D)	1,185	2,107	2,427	2,806	4.0	8.1	8.8	(D)	10.4	9.6	6.5	6.2
Germany	674	1,420	1,934	2,297	2,169	4,034	6,513	7,192	18.2	21.7	16.7	16.6	19.0	18.4	17.5	15.9
Netherlands	300	876	911	961	721	1,167	1,734	1,961	8.1	13.4	7.9	7.0	6.3	5.3	4.7	4.3
Sweden	86	251	315	738	439	(D)	(D)	(D)	2.3	3.8	2.7	5.3	3.9	(D)	(D)	(D)
Switzerland	290	425	1,131	1,585	780	1,866	2,532	3,043	7.8	6.5	9.8	11.5	6.8	8.5	6.8	6.7
United Kingdom	532	1,060	1,466	1,597	1,230	2,186	3,883	4,945	14.3	16.2	12.7	11.5	10.8	10.0	10.4	11.0
Japan	364	786	2,731	3,184	1,327	5,144	12,315	14,488	9.8	12.0	23.6	23.0	11.6	23.4	33.1	32.1
Korea, Republic of	(D)	(D)	(D)	(D)	46	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(D)	(D)	(D)
Other countries	(D)	(D)	(D)	1,129	1,216	1,680	2,910	4,092	(D)	(D)	(D)	8.2	10.7	7.7	7.8	9.1
Wholesale trade:																
All countries	22,117	18,257	34,612	35,513	57,071	90,649	89,202	109,634	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Canada	115	118	282	384	2,002	3,178	2,412	2,345	.5	.6	.8	1.1	3.5	3.5	2.7	2.1
France	(D)	745	(D)	(D)	1,600	2,287	1,994	2,387	(D)	4.1	(D)	(D)	2.8	2.5	2.2	2.2
Germany	351	347	481	440	7,116	9,749	8,694	11,434	1.6	1.9	1.4	1.2	12.5	10.8	9.7	10.4
Netherlands	64	(D)	83	176	176	385	1,520	1,521	.3	(D)	.2	.5	.3	.4	1.7	1.4
Sweden	(D)	(D)	87	(D)	2,125	3,457	2,940	2,806	(D)	(D)	.3	(D)	3.7	3.8	3.3	2.6
Switzerland	(D)	259	159	156	719	1,363	1,226	(D)	(D)	1.4	.5	.4	1.3	1.5	1.4	(D)
United Kingdom	123	150	466	270	1,973	2,574	2,330	2,030	.6	.8	1.3	.8	3.5	2.8	2.6	1.9
Japan	15,314	13,572	26,533	26,714	37,140	58,617	58,684	72,038	69.2	74.3	76.7	75.2	65.1	64.7	65.8	65.7
Korea, Republic of	551	1,084	1,263	989	1,342	4,199	3,444	5,765	2.5	5.9	3.7	2.8	2.4	4.6	3.9	5.3
Other countries	840	1,723	(D)	2,174	2,879	4,838	5,958	(D)	3.8	9.4	(D)	6.1	5.0	5.3	6.7	(D)
Petroleum and other industries:																
All countries	1,242	1,624	2,581	2,382	1,983	5,761	11,338	9,327	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Canada	332	488	232	106	557	759	1,007	1,222	26.7	30.1	9.0	4.5	28.1	13.2	8.9	13.1
France	(D)	11	(D)	14	16	92	252	175	(D)	.7	(D)	.6	.8	1.6	2.2	1.9
Germany	25	28	56	41	39	52	215	214	2.0	1.7	2.2	1.7	2.0	.9	1.9	2.3
Netherlands	401	(D)	552	636	417	685	1,043	613	32.3	(D)	21.4	26.7	21.0	11.9	9.2	6.6
Sweden	(D)	(D)	2	(D)	17	(D)	(D)	(D)	(D)	(D)	.1	(D)	.9	(D)	(D)	(D)
Switzerland	(D)	73	127	109	9	600	119	336	(D)	4.5	4.9	4.6	.5	10.4	1.0	(D)
United Kingdom	198	81	238	184	276	835	591	471	16.0	5.0	9.2	7.7	13.9	14.5	5.2	5.0
Japan	97	105	287	151	222	142	153	148	7.8	6.5	11.1	6.3	11.2	2.5	1.3	1.6
Korea, Republic of	(D)	(D)	(D)	(D)	(*)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(*)	(D)	(D)	(D)
Other countries	(D)	(D)	(D)	880	430	2,350	7,926	(D)	(D)	(D)	(D)	37.0	21.7	40.8	69.9	(D)

D Suppressed to the avoid disclosure of data of individual companies.
* Less than $500,000 or less than .05 percent, as appropriate.
UBO Ultimate beneficial owner

share has fluctuated in the range of 55 to 68 percent—many times larger than their share of U.S.-affiliate gross product (chart 5). Since 1982, Japanese-owned affiliates have also accounted for more than one-half of U.S.-affiliate intrafirm imports. For both exports and imports, this dominance mainly reflects trade by Japanese-owned wholesale trade affiliates, which function as intermediate agents for much of Japan's trade with the United States.

Within wholesale trade, Japanese-owned affiliates have accounted for about three-fourths of U.S.-affiliate intrafirm exports and for nearly two-thirds of U.S.-affiliate intrafirm imports (table 5). French-owned affiliates, mainly farm-product trading companies, have generally accounted for the second-largest share of the intrafirm exports; German-owned affiliates, mainly wholesale trade affiliates of motor vehicle manufacturers, have generally accounted for the second-largest share of the intrafirm imports.

In manufacturing, the shares of the intrafirm trade of affiliates have been much more evenly distributed among investing countries. Japanese-owned affiliates accounted for the largest shares of both intrafirm exports and imports in 1994, but their share of exports was less than one-fourth, and their share of imports was less than one-third. German-owned affiliates accounted for the second-largest shares—about one-sixth of both exports and imports. In the 1980's, the shares of Japanese-owned affiliates were substantially smaller: In 1984, their share of exports was exceeded by the shares of German-, British-, and Canadian-owned affiliates, and their share of imports was exceeded by the shares of Canadian- and German-owned affiliates. The increased share of Japanese-owned affiliates after 1984 reflects the large increase in Japanese ownership in U.S. manufacturing industries in the late 1980's.[16]

Geographic Patterns of Intrafirm Trade

The importance of intrafirm trade in total U.S. international trade in goods varies widely by trading partner. This section examines the shares of total U.S. trade in goods with major trading-partner countries that are accounted for by total intrafirm trade, by intrafirm trade between U.S. parent companies and MOFA's, and by intrafirm trade between U.S. affiliates and their foreign parent groups. The shares are computed for 1992, the most recent year for which geographic data on U.S.-affiliate intrafirm trade are available.[17]

The presentation is in two parts. The first part discusses differences in the intrafirm-trade shares for trade with 62 major partner countries, and the second explores the relation between these shares and the income levels of the partner countries.[18]

Intrafirm trade shares

Exports.—In 1992, the share of U.S. exports accounted for by intrafirm exports varied widely across countries of destination. For example, among the top six U.S. export markets—Canada, Japan, Mexico, the United Kingdom, Germany, and Taiwan—the intrafirm share ranged from 70 percent for Japan to 12 percent for Taiwan (chart 6 and table 6, column 7). In addition, the intrafirm-trade shares were particularly high for Switzerland (74 percent) and Russia (64 percent). For 24 of the 62 countries, the intrafirm share was less than 10 percent.

16. During 1987–90, the share of Japanese-owned manufacturing affiliates in the gross product of all manufacturing affiliates doubled—from 6 percent to 12 percent.

17. The data for intrafirm trade of U.S. affiliates are from the 1992 benchmark survey of foreign direct investment in the United States. Data on U.S.-affiliate trade by country of destination and by country of origin are collected in benchmark surveys, but not in annual surveys.

18. In this section, as in the previous section, total intrafirm trade is defined as the sum of the intrafirm trade between U.S. parents and MOFA's and the intrafirm trade between U.S. affiliates and their foreign parent groups (see footnote 11).

Text continues on page 148.

CHART 6

Intrafirm Trade Shares of U.S. Trade with Selected Trading Partners, 1992

Percent

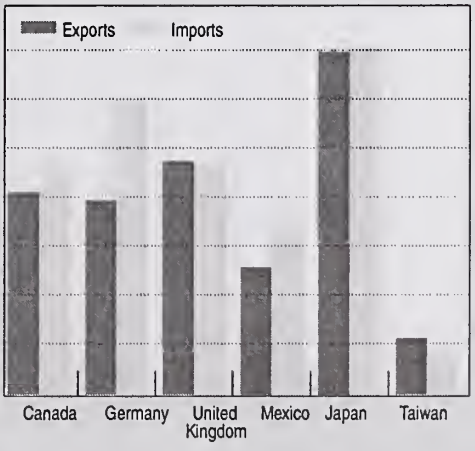


Table 6.—Total U.S. Trade in Goods and Intrafirm Trade in Goods by Country of Destination and Origin, 1992

	Exports by country of destination									
	Millions of dollars					Percent				
		Intrafirm exports					Intrafirm exports			
	Total [1]	Total	By U.S. parent companies to their majority-owned foreign affiliates	By U.S. affiliates to their foreign parent groups	Other exports	Total	Total	By U.S. parent companies to their majority-owned foreign affiliates	By U.S. affiliates to their foreign parent groups	Other exports
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
All countries	**448,164**	**149,504**	**100,737**	**48,767**	**298,660**	**100.0**	**33.4**	**22.5**	**10.9**	**66.6**
Canada	**90,594**	**37,484**	**33,878**	**3,606**	**53,110**	**100.0**	**41.4**	**37.4**	**4.0**	**58.6**
Europe	**122,617**	**43,500**	**32,829**	**10,671**	**79,117**	**100.0**	**35.5**	**26.8**	**8.7**	**64.5**
Austria	1,256	313	223	90	943	100.0	24.9	17.8	7.2	75.1
Belgium and Luxembourg	10,047	3,053	2,598	455	6,994	100.0	30.4	25.9	4.5	69.6
Denmark	1,473	194	160	34	1,279	100.0	13.2	10.9	2.3	86.8
Finland	785	142	74	68	643	100.0	18.1	9.4	8.7	81.9
France	14,593	4,947	3,975	972	9,646	100.0	33.9	27.2	6.7	66.1
Germany	21,249	8,446	6,544	1,902	12,803	100.0	39.7	30.8	9.0	60.3
Greece	901	32	26	6	869	100.0	3.6	2.9	.7	96.4
Ireland	2,862	887	834	53	1,975	100.0	31.0	29.1	1.9	69.0
Italy	8,721	2,060	1,614	446	6,661	100.0	23.6	18.5	5.1	76.4
Netherlands	13,752	5,212	4,412	800	8,540	100.0	37.9	32.1	5.8	62.1
Norway	1,279	209	124	85	1,070	100.0	16.3	9.7	6.6	83.7
Poland	641	12	(*)	12	629	100.0	1.9	(*)	1.9	98.1
Portugal	1,025	141	111	30	884	100.0	13.8	10.8	2.9	86.2
Russia	2,112	1,341	0	1,341	771	100.0	63.5	0	63.5	36.5
Spain	5,537	1,272	1,028	244	4,265	100.0	23.0	18.6	4.4	77.0
Sweden	2,845	780	604	176	2,065	100.0	27.4	21.2	6.2	72.6
Switzerland	4,540	3,374	2,539	835	1,166	100.0	74.3	55.9	18.4	25.7
Turkey	2,735	70	52	18	2,665	100.0	2.6	1.9	.7	97.4
United Kingdom	22,800	10,895	7,823	3,072	11,905	100.0	47.8	34.3	13.5	52.2
Other	3,464	120	88	32	3,344	100.0	3.5	2.5	.9	96.5
Latin America and Other Western Hemisphere	**75,800**	**15,750**	**14,110**	**1,640**	**60,050**	**100.0**	**20.8**	**18.6**	**2.2**	**79.2**
Argentina	3,223	408	368	40	2,815	100.0	12.7	11.4	1.2	87.3
Bahamas	712	107	107	0	605	100.0	15.0	15.0	0	85.0
Brazil	5,751	1,594	1,103	491	4,157	100.0	27.7	19.2	8.5	72.3
Chile	2,466	186	155	31	2,280	100.0	7.5	6.3	1.3	92.5
Colombia	3,286	357	301	56	2,929	100.0	10.9	9.2	1.7	89.1
Costa Rica	1,357	99	94	5	1,258	100.0	7.3	6.9	.4	92.7
Dominican Republic	2,100	63	57	6	2,037	100.0	3.0	2.7	.3	97.0
Ecuador	999	69	52	17	930	100.0	6.9	5.2	1.7	93.1
El Salvador	742	67	62	5	675	100.0	9.0	8.4	.7	91.0
Guatemala	1,205	130	123	7	1,075	100.0	10.8	10.2	.6	89.2
Honduras	811	115	113	2	696	100.0	14.2	13.9	.2	85.8
Jamaica	938	88	80	8	850	100.0	9.4	8.5	.9	90.6
Mexico	40,592	10,687	10,096	591	29,905	100.0	26.3	24.9	1.5	73.7
Netherlands Antilles	766	15	12	3	751	100.0	2.0	1.6	.4	98.0
Panama	1,103	332	169	163	771	100.0	30.1	15.3	14.8	69.9
Peru	1,005	46	37	9	959	100.0	4.6	3.7	.9	95.4
Trinidad and Tobago	448	(D)	(D)	1	(D)	100.0	A	A	.2	F
Venezuela	5,444	938	870	68	4,506	100.0	17.2	16.0	1.2	82.8
Other	2,852	(D)	(D)	137	(D)	100.0	A	A	4.8	F
Africa	**9,907**	**682**	**306**	**376**	**9,225**	**100.0**	**6.9**	**3.1**	**3.8**	**93.1**
Algeria	688	0	0	0	688	100.0	0	0	0	100.0
Angola	158	(D)	(D)	0	(D)	100.0	A	A	0	F
Egypt	3,088	59	25	34	3,029	100.0	1.9	.8	1.1	98.1
Nigeria	1,001	288	44	244	713	100.0	28.8	4.4	24.4	71.2
South Africa	2,434	218	167	51	2,216	100.0	9.0	6.9	2.1	91.0
Other	2,538	(D)	(D)	47	(D)	100.0	A	A	1.9	F
Middle East	**16,873**	**679**	**187**	**492**	**16,194**	**100.0**	**4.0**	**1.1**	**2.9**	**96.0**
Israel	4,077	116	36	80	3,961	100.0	2.8	.9	2.0	97.2
Kuwait	1,337	(D)	(D)	65	(D)	100.0	A	A	4.9	F
Saudi Arabia	7,167	316	14	302	6,851	100.0	4.4	.2	4.2	95.6
United Arab Emirates	1,553	78	69	9	1,475	100.0	5.0	4.4	.6	95.0
Other	2,739	(D)	(D)	36	(D)	100.0	A	A	1.3	F
Asia and Pacific	**132,070**	**50,786**	**19,365**	**31,421**	**81,284**	**100.0**	**38.5**	**14.7**	**23.8**	**61.5**
Australia	8,876	3,062	2,788	274	5,814	100.0	34.5	31.4	3.1	65.5
Bangladesh	188	4	(*)	4	184	100.0	2.1	(*)	2.1	97.9
China	7,418	1,456	148	1,308	5,962	100.0	19.6	2.0	17.6	80.4
Hong Kong	9,077	3,358	2,746	612	5,719	100.0	37.0	30.3	6.7	63.0
India	1,917	78	18	60	1,839	100.0	4.1	.9	3.1	95.9
Indonesia	2,779	305	163	142	2,474	100.0	11.0	5.9	5.1	89.0
Japan	47,813	33,525	7,592	25,933	14,288	100.0	70.1	15.9	54.2	29.9
Korea, Republic of	14,639	1,970	631	1,339	12,669	100.0	13.5	4.3	9.1	86.5
Malaysia	4,363	857	744	113	3,506	100.0	19.6	17.1	2.6	80.4
New Zealand	1,307	209	180	29	1,098	100.0	16.0	13.8	2.2	84.0
Pakistan	881	(D)	12	(D)	(D)	100.0	A	1.4	A	F
Philippines	2,759	192	126	66	2,567	100.0	7.0	4.6	2.4	93.0
Singapore	9,626	3,109	2,485	624	6,517	100.0	32.3	25.8	6.5	67.7
Taiwan	15,250	1,791	1,053	738	13,459	100.0	11.7	6.9	4.8	88.3
Thailand	3,989	813	658	155	3,176	100.0	20.4	16.5	3.9	79.6
Other	1,188	(D)	21	(D)	(D)	100.0	A	1.8	A	F
Unallocated		623	61	562						

See footnotes at the end of the table.

Table 6.—Total U.S. Trade in Goods and Intrafirm Trade in Goods by Country of Destination and Origin, 1992—Continued

	Imports by country of origin									
	Millions of dollars					Percent				
		Intrafirm imports					Intrafirm imports			
	Total [1]	Total	By U.S. parent companies from their majority-owned foreign affiliates	By U.S. affiliates from their foreign parent groups	Other imports	Total	Total	By U.S. parent companies from their majority-owned foreign affiliates	By U.S. affiliates from their foreign parent groups	Other imports
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
All countries	**532,665**	**221,059**	**83,260**	**137,799**	**311,606**	**100.0**	**41.5**	**15.6**	**25.9**	**58.5**
Canada	**98,630**	**46,061**	**36,613**	**9,448**	**52,569**	**100.0**	**46.7**	**37.1**	**9.6**	**53.3**
Europe	**112,707**	**52,226**	**12,967**	**39,259**	**60,481**	**100.0**	**46.3**	**11.5**	**34.8**	**53.7**
Austria	1,307	(D)	(D)	415	(D)	100.0	B	A	31.8	E
Belgium and Luxembourg	4,703	(D)	(D)	1,767	(D)	100.0	C	A	37.6	C
Denmark	1,667	565	68	497	1,102	100.0	33.9	4.1	29.8	66.1
Finland	1,185	(D)	(D)	354	(D)	100.0	B	A	29.9	E
France	14,797	5,717	1,829	3,888	9,080	100.0	38.6	12.4	26.3	61.4
Germany	28,820	17,438	2,558	14,880	11,382	100.0	60.5	8.9	51.6	39.5
Greece	370	(D)	2	(D)	(D)	100.0	A	.5	A	F
Ireland	2,262	1,255	1,053	202	1,007	100.0	55.5	46.6	8.9	44.5
Italy	12,314	1,907	616	1,291	10,407	100.0	15.5	5.0	10.5	84.5
Netherlands	5,300	3,421	891	2,530	1,879	100.0	64.5	16.8	47.7	35.5
Norway	1,969	402	129	273	1,567	100.0	20.4	6.6	13.9	79.6
Poland	375	20	0	20	355	100.0	5.3	0	5.3	94.7
Portugal	664	33	26	7	631	100.0	5.0	3.9	1.1	95.0
Russia	481	211	0	211	270	100.0	43.9	0	43.9	56.1
Spain	3,002	557	351	206	2,445	100.0	18.6	11.7	6.9	81.4
Sweden	4,716	3,085	157	2,928	1,631	100.0	65.4	3.3	62.1	34.6
Switzerland	5,645	4,315	316	3,999	1,330	100.0	76.4	5.6	70.8	23.6
Turkey	1,110	31	18	13	1,079	100.0	2.8	1.6	1.2	97.2
United Kingdom	20,093	9,522	4,008	5,514	10,571	100.0	47.4	19.9	27.4	52.6
Other	1,927	308	(D)	(D)	(D)	100.0	A	2.7	A	F
Latin America and Other Western Hemisphere	**68,755**	**19,992**	**13,960**	**6,032**	**48,763**	**100.0**	**29.1**	**20.3**	**8.8**	**70.9**
Argentina	1,256	147	63	84	1,109	100.0	11.7	5.0	6.7	88.3
Bahamas	605	13	(D)	(D)	592	100.0	2.1	A	A	97.9
Brazil	7,609	2,506	1,466	1,040	5,103	100.0	32.9	19.3	13.7	67.1
Chile	1,388	140	90	50	1,248	100.0	10.1	6.5	3.6	89.9
Colombia	2,837	231	153	78	2,606	100.0	8.1	5.4	2.7	91.9
Costa Rica	1,412	(D)	58	(D)	(D)	100.0	A	4.1	A	F
Dominican Republic	2,373	(D)	71	(D)	(D)	100.0	A	3.0	A	F
Ecuador	1,344	179	139	40	1,165	100.0	13.3	10.3	3.0	86.7
El Salvador	384	15	(D)	(D)	369	100.0	3.9	A	A	96.1
Guatemala	1,081	(D)	(D)	11	(D)	100.0	A	A	1.0	F
Honduras	782	(D)	91	(D)	(D)	100.0	A	11.6	A	F
Jamaica	599	196	(D)	(D)	403	100.0	32.7	B	A	67.3
Mexico	35,211	12,209	10,739	1,470	23,002	100.0	34.7	30.5	4.2	65.3
Netherlands Antilles	856	49	5	44	807	100.0	5.7	.6	5.1	94.3
Panama	254	35	15	20	219	100.0	13.8	5.9	7.9	86.2
Peru	738	(D)	14	(D)	(D)	100.0	A	1.9	A	F
Trinidad and Tobago	848	475	(D)	(D)	373	100.0	56.0	C	A	44.0
Venezuela	8,181	(D)	(D)	3,102	(D)	100.0	B	A	37.9	E
Other	997	363	359	4	634	100.0	36.4	36.0	.4	63.6
Africa	**14,346**	**2,922**	**1,957**	**966**	**11,424**	**100.0**	**20.4**	**13.6**	**6.7**	**79.6**
Algeria	1,586	(D)	0	(D)	(D)	100.0	A	0	A	F
Angola	2,303	(D)	(D)	0	(D)	100.0	A	A	0	F
Egypt	434	(D)	(D)	0	(D)	100.0	A	A	0	F
Nigeria	5,103	2,133	1,402	731	2,970	100.0	41.8	27.5	14.3	58.2
South Africa	1,727	131	9	122	1,596	100.0	7.6	.5	7.1	92.4
Other	3,193	(D)	207	(D)	(D)	100.0	A	6.5	A	F
Middle East	**15,726**	**4,329**	**579**	**3,750**	**11,397**	**100.0**	**27.5**	**3.7**	**23.8**	**72.5**
Israel	3,815	803	400	403	3,012	100.0	21.0	10.5	10.6	79.0
Kuwait	281	(D)	0	(D)	(D)	100.0	A	0	A	F
Saudi Arabia	10,371	(D)	1	(D)	(D)	100.0	B	(*)	B	E
United Arab Emirates	812	(D)	(D)	(D)	(D)	100.0	B	B	A	E
Other	447	(D)	(D)	2	(D)	100.0	A	A	.4	F
Asia and Pacific	**222,502**	**94,802**	**17,185**	**77,617**	**127,700**	**100.0**	**42.6**	**7.7**	**34.9**	**57.4**
Australia	3,688	1,223	546	677	2,465	100.0	33.2	14.8	18.4	66.8
Bangladesh	831	0	0	0	831	100.0	0	0	0	100.0
China	25,728	(D)	(D)	502	(D)	100.0	A	A	2.0	F
Hong Kong	9,793	4,823	3,481	1,342	4,970	100.0	49.2	35.5	13.7	50.8
India	3,780	(D)	(D)	20	(D)	100.0	A	A	.5	F
Indonesia	4,529	(D)	(D)	119	(D)	100.0	A	A	2.6	F
Japan	97,414	69,447	1,991	67,456	27,967	100.0	71.3	2.0	69.2	28.7
Korea, Republic of	16,682	3,761	264	3,497	12,921	100.0	22.5	1.6	21.0	77.5
Malaysia	8,294	2,671	2,151	520	5,623	100.0	32.2	25.9	6.3	67.8
New Zealand	1,218	262	24	238	956	100.0	21.5	2.0	19.5	78.5
Pakistan	866	0	(*)	0	866	100.0	0	(*)	0	100.0
Philippines	4,355	611	337	274	3,744	100.0	14.0	7.7	6.3	86.0
Singapore	11,313	7,573	6,023	1,550	3,740	100.0	66.9	53.2	13.7	33.1
Taiwan	24,596	1,985	881	1,104	22,611	100.0	8.1	3.6	4.5	91.9
Thailand	7,529	1,075	762	313	6,454	100.0	14.3	10.1	4.2	85.7
Other	1,886	15	11	5	1,871	100.0	.8	.6	.3	99.2
Unallocated		727	0	727						

(D) Suppressed to avoid the disclosure of data of individual companies.
(*) Less than $500,000 or less than 0.05 percent, as appropriate.
1. Data are from the Bureau of the Census.

NOTES.—The countries listed in this table are the 62 U.S. trading partners for which the sum of U.S. exports and U.S. imports was at least $1 billion in 1992.

Size ranges are given in the percentage cells that are suppressed; these ranges are A—0.01 to 19.9; B—20.0 to 39.9; C—40.0 to 59.9; E—60.0 to 79.9; F—80.0 to 100.

Table 7.—Intrafirm Trade in Goods Between U.S. Parent Companies and Their Majority-Owned Foreign Affiliates by Country of Destination or Origin and by Major Industry of Affiliate, 1992

	Millions of dollars				Percent			
	All industries	Manufacturing	Wholesale trade	Petroleum and other industries	All industries	Manufacturing	Wholesale trade	Petroleum and other industries
Exports by country of destination:								
All countries	100,737	65,272	31,501	3,964	100.0	64.8	31.3	3.9
Canada	33,878	28,177	5,285	416	100.0	83.2	15.6	1.2
Europe	32,829	17,335	13,769	1,725	100.0	52.8	41.9	5.3
Belgium and Luxembourg	2,598	1,626	(D)	(D)	100.0	62.6	B	A
France	3,975	1,830	2,058	87	100.0	46.0	51.8	2.2
Germany	6,544	4,423	1,969	152	100.0	67.6	30.1	2.3
Ireland	834	778	54	2	100.0	93.3	6.5	.2
Italy	1,614	876	716	22	100.0	54.3	44.4	1.4
Netherlands	4,412	2,115	1,939	358	100.0	47.9	43.9	8.1
Spain	1,028	495	523	10	100.0	48.2	50.9	1.0
Sweden	604	156	440	8	100.0	25.8	72.8	1.3
Switzerland	2,539	185	2,321	33	100.0	7.3	91.4	1.3
United Kingdom	7,823	4,533	2,449	841	100.0	57.9	31.3	10.8
Other	858	318	(D)	(D)	100.0	37.1	C	A
Latin America and Other Western Hemisphere	14,110	11,700	1,487	923	100.0	82.9	10.5	6.5
Brazil	1,103	1,064	19	20	100.0	96.5	1.7	1.8
Mexico	10,096	9,335	672	89	100.0	92.5	6.7	.9
Venezuela	870	678	164	28	100.0	77.9	18.9	3.2
Other	2,041	623	632	786	100.0	30.5	31.0	38.5
Africa	306	147	67	92	100.0	48.0	21.9	30.1
Nigeria	44	13	8	23	100.0	29.5	18.2	52.3
Other	262	134	59	69	100.0	51.1	22.5	26.3
Middle East	187	23	57	107	100.0	12.3	30.5	57.2
Asia and Pacific	19,365	7,890	10,835	640	100.0	40.7	56.0	3.3
Australia	2,788	1,186	1,549	53	100.0	42.5	55.6	1.9
Hong Kong	2,746	581	2,102	63	100.0	21.2	76.5	2.3
Indonesia	163	26	15	122	100.0	16.0	9.2	74.8
Japan	7,592	2,408	4,929	255	100.0	31.7	64.9	3.4
Korea, Republic of	631	406	206	19	100.0	64.3	32.6	3.0
Malaysia	744	599	145	(*)	100.0	80.5	19.5	(*)
Singapore	2,485	1,530	897	58	100.0	61.6	36.1	2.3
Taiwan	1,053	513	517	23	100.0	48.7	49.1	2.2
Thailand	658	457	187	14	100.0	69.5	28.4	2.1
Other	505	184	288	33	100.0	36.4	57.0	6.5
Unallocated	61			61				
Imports by country of origin:								
All countries	83,260	67,241	7,803	8,216	100.0	80.8	9.4	9.9
Canada	36,613	31,789	1,166	3,658	100.0	86.8	3.2	10.0
Europe	12,967	9,956	2,498	513	100.0	76.8	19.3	4.0
Belgium and Luxembourg	(D)	(D)	109	1	100.0	F	A	A
France	1,829	890	933	6	100.0	48.7	51.0	.3
Germany	2,558	2,431	91	36	100.0	95.0	3.6	1.4
Ireland	1,053	1,037	16	0	100.0	98.5	1.5	0
Italy	616	492	(D)	(D)	100.0	79.9	A	A
Netherlands	891	781	94	16	100.0	87.7	10.5	1.8
Spain	351	257	94	(*)	100.0	73.2	26.8	(*)
Sweden	157	155	2	(*)	100.0	98.7	1.3	(*)
Switzerland	316	73	242	1	100.0	23.1	76.6	.3
United Kingdom	4,008	2,923	802	283	100.0	72.9	20.0	7.1
Other	(D)	(D)	(D)	(D)	100.0	E	A	B
Latin America and Other Western Hemisphere	14,770	12,271	543	1,956	100.0	83.1	3.7	13.2
Brazil	1,466	1,464	(*)	2	100.0	99.9	0	.1
Mexico	10,739	10,423	266	50	100.0	97.1	2.5	.5
Venezuela	(D)	9	1	(D)	100.0	E	A	B
Other	(D)	375	276	(D)	100.0	A	A	E
Africa	1,957	(D)	(D)	(D)	100.0	A	A	F
Nigeria	1,402	0	0	1,402	100.0	0	0	100.0
Other	554	(D)	(D)	(D)	100.0	A	A	F
Middle East	579	(D)	(D)	(D)	100.0	E	A	B
Asia and Pacific	17,185	12,776	3,576	833	100.0	74.3	20.8	4.8
Australia	546	363	(D)	(D)	100.0	66.5	B	A
Hong Kong	3,481	867	2,609	5	100.0	24.9	74.9	.1
Indonesia	(D)	5	0	(D)	100.0	A	0	F
Japan	1,991	1,447	(D)	(D)	100.0	72.7	B	A
Korea, Republic of	264	(D)	(D)	0	100.0	F	A	0
Malaysia	2,151	2,150	1	0	100.0	100.0	(*)	0
Singapore	6,023	5,777	(D)	(D)	100.0	95.9	A	A
Taiwan	881	829	50	2	100.0	94.1	5.7	.2
Thailand	762	(D)	1	(D)	100.0	F	.1	A
Other	(D)	405	1	(D)	100.0	F	A	A

D Suppressed to avoid the disclosure of data of individual companies.
* Less than $500,000 or less than .05 percent, as appropriate.

NOTES.—The countries listed in this table are the U.S. trading partners in table 6 for which intrafirm U.S. exports to or imports from majority-owned foreign affiliates was at least $500 million in 1992.

Size ranges are given in the percentage cells that are suppressed; these ranges are A—0.1 to 19.9; B—20.0 to 39.9; C—40.0 to 59.9; E—60.0 to 79.9; F—80.0 to 100.

Table 8.—Intrafirm Trade in Goods Between U.S. Affiliates and Their Foreign Parent Groups by Country of Destination or Origin and by Major Industry of Affiliate, 1992

	Millions of dollars				Percent				Addendum: Percentage of U.S.-affiliate intrafirm trade with country accounted for by affiliates with UBO's in the country
	All industries	Manufacturing	Wholesale trade	Petroleum and other industries	All industries	Manufacturing	Wholesale trade	Petroleum and other industries	
Exports by country of destination:									
All countries	48,767	11,574	34,612	2,581	100.0	23.7	71.0	5.3	
Canada	3,606	2,166	1,130	310	100.0	60.1	31.3	8.6	38.9
Europe	10,671	4,934	5,136	601	100.0	46.2	48.1	5.6	
Belgium and Luxembourg	455	301	101	53	100.0	66.2	22.2	11.6	20.2
France	972	728	153	91	100.0	74.9	15.7	9.4	64.4
Germany	1,902	1,286	499	117	100.0	67.6	26.2	6.2	66.8
Italy	446	187	189	70	100.0	41.9	42.4	15.7	62.8
Netherlands	800	463	301	36	100.0	57.9	37.6	4.5	48.9
Russia	1,341	1	1,341	0	100.0	.1	100.0	0	0
Sweden	176	125	36	15	100.0	71.0	20.5	8.5	68.2
Switzerland	835	655	166	14	100.0	78.4	19.9	1.7	73.1
United Kingdom	3,072	874	2,049	149	100.0	28.5	66.7	4.9	30.9
Other	672	314	301	56	100.0	46.7	44.8	8.3	
Latin America and Other Western Hemisphere	1,640	477	721	442	100.0	29.1	44.0	27.0	
Brazil	491	81	(D)	(D)	100.0	16.5	A	E	E
Mexico	591	259	311	21	100.0	43.8	52.6	3.6	34.0
Venezuela	68	35	(D)	(D)	100.0	51.5	A	B	A
Other	490	102	346	42	100.0	20.8	70.6	8.6	
Africa	376	123	80	173	100.0	32.7	21.3	46.0	
Nigeria	244	(D)	0	(D)	100.0	B	0	E	0
Other	132	28	80	24	100.0	21.2	60.6	18.2	
Middle East	492	20	124	348	100.0	4.1	25.2	70.7	
Saudi Arabia	302	2	(D)	(D)	100.0	.7	A	F	F
Other	190	18	121	51	100.0	9.5	63.7	26.8	
Asia and Pacific	31,421	3,489	27,262	670	100.0	11.1	86.8	2.1	
Australia	274	182	59	33	100.0	66.4	21.5	12.0	18.6
China	1,308	38	1,242	28	100.0	2.9	95.0	2.1	C
Hong Kong	612	374	203	35	100.0	61.1	33.2	5.7	4.7
Japan	25,933	2,350	23,240	343	100.0	9.1	89.6	1.3	97.6
Korea, Republic of	1,339	38	1,203	98	100.0	2.8	89.8	7.3	72.4
Malaysia	113	45	68	0	100.0	39.8	60.2	0	A
Singapore	624	197	367	60	100.0	31.6	58.8	9.6	2.6
Taiwan	738	198	510	30	100.0	26.8	69.1	4.1	27.8
Other	480	67	370	43	100.0	14.0	77.1	9.0	
Unallocated	562	364	158	40					
Imports by country of origin:									
All countries	137,799	37,259	89,202	11,338	100.0	27.0	64.7	8.2	
Canada	9,448	4,311	3,538	1,599	100.0	45.6	37.4	16.9	70.0
Europe	39,259	17,417	20,248	1,594	100.0	44.4	51.6	4.1	
Belgium and Luxembourg	1,767	598	1,077	92	100.0	33.8	61.0	5.2	31.6
France	3,888	2,085	1,592	211	100.0	53.6	40.9	5.4	79.4
Germany	14,880	6,069	8,542	269	100.0	40.8	57.4	1.8	93.7
Italy	1,291	457	653	181	100.0	35.4	50.6	14.0	77.4
Netherlands	2,530	1,038	1,451	41	100.0	41.0	57.4	1.6	82.2
Russia	211	0	(D)	(D)	100.0	0	F	A	F
Sweden	2,928	599	2,291	38	100.0	20.5	78.2	1.3	95.7
Switzerland	3,999	3,006	975	18	100.0	75.2	24.4	.5	75.1
United Kingdom	5,514	2,455	2,402	657	100.0	44.5	43.6	11.9	80.0
Other	2,251	1,110	1,056	85	100.0	49.3	46.9	3.8	
Latin America and Other Western Hemisphere	6,032	605	1,814	3,613	100.0	10.0	30.1	59.9	
Brazil	1,040	217	(D)	(D)	100.0	20.9	B	C	66.8
Mexico	1,470	342	1,099	29	100.0	23.3	74.8	2.0	38.7
Venezuela	3,102	(*)	(D)	(D)	100.0	(*)	A	F	F
Other	420	46	308	66	100.0	11.0	73.3	15.7	
Africa	966	129	87	750	100.0	13.4	9.0	77.6	
Nigeria	731	0	(D)	(D)	100.0	0	A	F	0
Other	235	129	79	27	100.0	54.9	33.6	11.5	
Middle East	3,750	68	207	3,475	100.0	1.8	5.5	92.7	
Saudi Arabia	3,331	0	0	3,331	100.0	0	0	100.0	100.0
Other	419	68	207	144	100.0	16.2	49.4	34.4	
Asia and Pacific	77,617	14,394	62,929	294	100.0	18.5	81.1	.4	
Australia	677	117	523	37	100.0	17.3	77.3	5.5	43.1
China	502	68	419	15	100.0	13.5	83.5	3.0	E
Hong Kong	1,342	218	1,086	38	100.0	16.2	80.9	2.8	30.2
Japan	67,456	12,149	55,153	154	100.0	18.0	81.8	.2	99.5
Korea, Republic of	3,497	507	2,968	22	100.0	14.5	84.9	.6	92.6
Malaysia	520	283	237	0	100.0	54.4	45.6	0	0
Singapore	1,550	310	1,239	1	100.0	20.0	79.9	.1	2.6
Taiwan	1,104	331	761	12	100.0	30.0	68.9	1.1	62.6
Other	969	411	543	15	100.0	42.4	56.0	1.5	
Unallocated	727	336	(D)	(D)					

(D) Suppressed to avoid the disclosure of data of individual companies.
* Less than $500,000 or less than .05 percent, as appropriate.

NOTES.—The countries listed in this table are the U.S. trading partners in table 6 for which intrafirm exports or imports by U.S. affiliates was at least $500 million in 1992.

Size ranges are given in the percentage cells that are suppressed; these ranges are A—0.1 to 19.9; B—20.0 to 39.9; C—40.0 to 59.9; E—60.0 to 79.9; F—80.0 to 100.

Text continues from page 143.

For most countries, U.S. intrafirm exports consisted mainly of exports by U.S. parent companies to their MOFA's rather than exports by U.S. affiliates to their foreign parent groups. Intrafirm exports to MOFA's accounted for more than 20 percent of total U.S. exports to 13 countries, many of which were among the largest U.S. export markets (table 6, column 8). The shares were highest for Switzerland (56 percent), Canada (37 percent), and the United Kingdom (34 percent). The intrafirm exports to MOFA's in Switzerland were mainly shipped to wholesale trade affiliates (table 7). Exports to manufacturing affiliates accounted for a dominant share of intrafirm exports to MOFA's in most other countries, including Canada and the United Kingdom.

For all but a few countries, the share of U.S. exports accounted for by intrafirm exports by foreign-owned U.S. affiliates was small—less than 10 percent (table 6, column 9). However, for Japan, the second largest U.S. export market in 1992, the share was 54 percent. The large share for Japan underscores the importance of wholesale trade affiliates in handling Japanese trade with the United States: About 90 percent of total U.S.-affiliate intrafirm exports to Japan was accounted for by Japanese-owned wholesale trade affiliates (table 8). Intrafirm exports by U.S. affiliates also accounted for a majority of U.S. exports to Russia and for about one-fourth of U.S. exports to Nigeria; however, these exports were all shipped by affiliates with owners in other countries.[19] The exports to Russia were mainly by French-owned wholesale trade affiliates, and the exports to Nigeria were mainly by European-owned affiliates in the petroleum industry.[20]

Imports.—The intrafirm-trade share of U.S. imports also varied substantially across countries. Among the top six source-countries for U.S. imports—Canada, Japan, Mexico, Germany, China, and Taiwan—the share ranged from 71 percent for Japan to less than 10 percent for China and Taiwan (table 6, column 7). For Germany, the share was 61 percent. In addition to Japan and Germany, intrafirm trade accounted for a majority of U.S. imports from seven other countries; the share was highest for Switzerland (76 percent). In addition to China and Taiwan, intrafirm trade accounted for less than 10 percent of U.S. imports from 19 other countries.

For slightly more than one-half of the countries shown in table 6, imports by U.S. affiliates from their foreign parent groups accounted for a majority of U.S. intrafirm imports. The share of total U.S. imports that was accounted for by U.S.-affiliate intrafirm imports (26 percent) was much higher than the share accounted for by U.S. intrafirm imports from MOFA's (16 percent). This difference in shares reflects the large U.S.-affiliate shares for a few countries, including some of the largest source-countries for U.S. imports: Intrafirm imports by U.S. affiliates accounted for 69 percent of U.S. imports from Japan and 52 percent of U.S. imports from Germany (table 6, column 9). The shares were also very large for Switzerland (71 percent), Sweden (62 percent), and the Netherlands (48 percent). The imports from Switzerland were mainly by manufacturing affiliates (particularly affiliates in the pharmaceutical industry), and the imports from Japan, Germany, Sweden, and the Netherlands were mainly by wholesale trade affiliates (table 8).[21] For Germany and Sweden, a large share of the imports were by wholesale trade affiliates of motor vehicle companies headquartered in those countries.

Intrafirm imports from MOFA's accounted for a substantial share of U.S. imports from a number of major trading partners, including Canada, Mexico, and three rapidly industrializing countries in Southeast Asia—Singapore, Hong Kong, and Malaysia (table 6, column 8). The shares were particularly high for Singapore (53 percent) and Canada (37 percent). Most of the intrafirm imports from Canada and Mexico were from manufacturing affiliates, particularly affiliates in the motor vehicle industry (table 7). Manufacturing affiliates also accounted for virtually all of the intrafirm imports from Singapore and Malaysia; most of these imports were from MOFA's in the computer and electronic components industries. In contrast, the intrafirm imports from Hong Kong were mainly from MOFA's in wholesale trade.

19. Intrafirm trade between a U.S. affiliate and its foreign parent group need not be trade with the country of the affiliate's UBO, because some member firms of the foreign parent group may be located in other countries.

20. Exports to France accounted for only 15 percent of the intrafirm exports by French-owned affiliates.

21. As shown in the addendum to table 8, the U.S.-affiliate intrafirm imports from these five countries were predominantly by affiliates with UBO's in those countries. In addition, imports originating in the UBO country accounted for a dominant share of the intrafirm imports by affiliates with UBO's in all of the countries except the Netherlands: Imports from the UBO country accounted for more than 90 percent of the intrafirm imports by Japanese- and German-owned affiliates and for more than 70 percent of the intrafirm imports by Swiss- and Swedish-owned affiliates.

Relation to trading-partner income levels

Intrafirm transactions—particularly shipments flowing from parent companies to their affiliates—tend to be relatively more important in U.S. trade with higher income countries. Among 59 major trading partners, there is a pronounced tendency for the shares of both U.S.-MNC intrafirm exports in total U.S. exports and foreign-MNC intrafirm imports in total U.S. imports to increase as the per capita gross national product (GNP) of the trading partners increases (table 9). For U.S.-MNC intrafirm trade, the average share of U.S. exports increases from 4 percent for the 11 trading partners with a per capita GNP of less than $1,000 to 23 percent for the 14 trading partners with a per capita GNP of at least $20,000. For foreign-MNC intrafirm trade, the average share of U.S. imports increases from less than 3 percent for the 11 countries with the lowest per capita GNP to 35 percent for the 14 countries with the highest per capita GNP.

The positive relation between the intrafirm-trade shares and trading-partner income levels partly reflects shipments by parent firms to their wholesale trade affiliates: The shares in trade of both exports by U.S. parent companies to their wholesale trade MOFA's and imports by U.S. wholesale trade affiliates from their foreign parent groups are strongly correlated with the per capita GNP of U.S. trading partners (table 10). A local presence in overseas markets through the establishment of wholesale trade affiliates—and the associated replacement of arm's-length transactions with intrafirm trade—is often required for the marketing of sophisticated, heterogeneous manufactured products (such as automobiles and advanced machinery products), which tend to be both supplied from and sold to higher income countries.[22]

For U.S. MNC's, most intrafirm trade is between U.S. parents and their manufacturing MOFA's. The share of U.S. exports accounted for by intrafirm exports to manufacturing MOFA's is positively correlated with the per capita GNP of U.S. trading partners; however, the relation is not as strong as that for intrafirm exports to wholesale trade MOFA's. The positive correlation is consistent with the fact that U.S.-MNC manufacturing production is largely concentrated in high-income countries: In 1992, 74 percent of the gross product of manufacturing MOFA's was accounted for by MOFA's in Canada and Europe. Among the 59 trading partners, Canada and several high-income countries in Europe had the highest shares of U.S. exports accounted for by intrafirm exports to manufacturing MOFA's. The share was also sizable for a few middle-income countries (most notably Mexico and Brazil), but it was generally very small for low-income countries.

Table 9.—Average Intrafirm Shares of U.S. Trade in Goods with Trading Partners Grouped by Per Capita GNP, 1992

	Number of countries	Intrafirm trade of U.S. MNC's		Intrafirm trade of foreign MNC's	
		As a percentage of U.S. exports to country	As a percentage of U.S. imports from country	As a percentage of U.S. exports to country	As a percentage of U.S. imports from country
All countries	59	13.0	10.8	6.2	14.5
GNP per capita (U.S. dollars):					
20,000 or more	14	22.6	10.7	9.9	35.1
10,000 to 19,999	9	22.1	21.7	4.5	13.4
2,000 to 9,999	15	9.6	10.5	7.9	12.9
1,000 to 1,999	10	5.9	6.8	1.2	2.3
Less than 1,000	11	4.3	6.1	5.3	2.6

NOTES.—Countries are grouped by their per capita GNP. The average intrafirm-trade shares shown are unweighted averages for all countries in a given size group.

The 59 countries consist of all of the trading partners shown in table 6 except the Netherlands Antilles, Angola, and Kuwait (countries for which 1992 data on per capita GNP are not available).

The data on GNP per capita for all of the countries except Taiwan are from the World Bank, *World Development Report, 1994*. For Taiwan, the U.S.-dollar value of GNP per capita, from Taiwan Government sources, was provided by the International Trade Administration.

GNP Gross national product

22. As mentioned earlier, these products may require the establishment of wholesale trade affiliates to monitor customer requirements or tastes and to provide on-site after-sales service.

Table 10.—Cross-Country Correlations Between Per Capita GNP and the Intrafirm Share of U.S. Trade in Goods with Trading Partners

	U.S. exports to country	U.S. imports from country
Coefficient of correlation across 59 countries between per capita GNP and the percentage of U.S. exports to or imports from country accounted for by:		
Total intrafirm trade	0.601***	0.672***
Intrafirm trade between U.S. parent companies and their majority-owned foreign affiliates:		
Affiliates in all industries	.659***	.122
Manufacturing affiliates	.332**	.183
Wholesale trade affiliates	.731***	.240*
Affiliates in petroleum and other industries	–.191	–.135
Intrafirm trade between U.S. affiliates and their foreign parent groups:		
Affiliates in all industries	.211	.709***
Manufacturing affiliates	.649***	.716***
Wholesale trade affiliates	.077	.588***
Affiliates in petroleum and other industries	–.062	–.077

*** Statistically significant at the 99-percent confidence level.
** Statistically significant at the 95-percent confidence level.
* Statistically significant at the 90-percent confidence level.

NOTE.—The sample of 59 countries consists of all of the trading partners shown in table 6 except the Netherlands Antilles, Angola, and Kuwait (see note to table 9).

GNP Gross national product

In contrast, the share of U.S. imports accounted for by intrafirm imports from manufacturing MOFA's is not significantly related to the per capita GNP of the trading partners. This result reflects the local-market orientation of U.S. multinational production in most high-income countries: The intrafirm share of imports, in contrast to that of exports, is substantially lower for a number of high-income countries in Europe, where affiliates produce mainly for the local market, and substantially higher for the several middle-income countries where affiliates tend to export much of their output to the United States.[23] Like intrafirm exports, intrafirm imports from manufacturing affiliates generally account for a small share of U.S. imports from the trading partners with the lowest incomes. If some U.S. companies rely extensively on low-income countries for production operations requiring low-skilled labor, it would appear that the associated trade flows commonly take the form of market transactions with unrelated parties rather than intrafirm trade.

For foreign MNC's, the share of U.S. imports accounted for by intrafirm imports by U.S. manufacturing affiliates is strongly correlated with the per capita GNP of U.S. trading partners, reflecting the fact that foreign direct investment in U.S. manufacturing has come largely from high-income countries. Much of this investment has been in advanced manufacturing industries, such as chemicals or electronic equipment, where firms might be expected to possess some proprietary technology. In such industries, the parent firms may produce specialized materials or components that they then supply to their affiliates through intrafirm trade.[24]

Although the correlation for the share of intrafirm exports by manufacturing affiliates is also positive and significant, the overall correlation for intrafirm exports by U.S. affiliates is insignificant, because of the very weak correlation for wholesale trade affiliates (which account for the bulk of U.S.-affiliate trade). The insignificant correlation for exports by wholesale trade affiliates partly reflects intrafirm exports to lower income countries by French-owned trading companies.

23. To illustrate this contrast, the share of U.S. goods trade with Germany that is accounted for by intrafirm trade with manufacturing MOFA's is 21 percent for exports and 8 percent for imports. For U.S. trade with Malaysia, the shares are 14 percent for exports and 26 percent for imports. According to 1992 data from BEA's annual survey of U.S. direct investment abroad, the share of sales that were to the United States was 3 percent for manufacturing MOFA's in Germany and 56 percent for manufacturing MOFA's in Malaysia.

24. Although most foreign direct investment in the United States has taken the form of acquisitions of existing companies rather than the establishment of new companies, the reliance of foreign-owned manufacturing affiliates on their foreign parents for intermediate products is considerable: In 1992, intrafirm imports accounted for 12 percent of the total purchased inputs of U.S. manufacturing affiliates.

Establishment-Level Data

Characteristics of Foreign-Owned U.S. Manufacturing Establishments

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THIS ARTICLE examines the characteristics of foreign-owned U.S. manufacturing establishments on the basis of newly released data from a joint project of the Bureau of Economic Analysis (BEA) and the Bureau of the Census. The data greatly expand the establishment-level information available on the manufacturing operations of U.S. affiliates of foreign companies.[1] Because the establishment data provide more detailed and more precise information on the industrial composition of affiliates' operations than BEA's enterprise data (see the box on page 35), they can significantly enhance and extend the analysis of key questions about foreign direct investment in the United States (FDIUS), such as whether foreign-owned plants account for significant shares of total U.S. production in specific manufacturing industries and whether the wage rates and productivity of foreign-owned U.S. plants differ from those of U.S.-owned plants.

The new data on foreign-owned manufacturing establishments indicate the following:

- The average plant size, or scale, of foreign-owned establishments is much larger than that of U.S.-owned establishments, mostly reflecting the tendency for foreign-owned establishments to be larger than U.S.-owned establishments within specific industries. Less important is the tendency of foreign-owned establishments to be concentrated in industries with larger-than-average plant size.
- The capital intensity of foreign-owned establishments is higher than that of U.S.-owned establishments, almost entirely reflecting foreign-owned establishments' relatively greater concentration in the industries that are the most capital intensive; the overall effect of within-industry differences is negligible. In many industries, the capital intensity of foreign-owned establishments differs from that of U.S.-owned establishments, but there is no systematic tendency for this difference to be in one direction or the other.
- The hourly wages paid to production workers are higher for foreign-owned establishments than for U.S.-owned establishments. Foreign-owned establishments tend to be in higher wage industries, and their production is more concentrated in large plants, which generally have higher wage rates than small plants. Foreign ownership per se does not appear to influence wage rates.
- The labor productivity of foreign-owned establishments is higher than that of U.S.-owned establishments, largely reflecting the tendency for foreign-owned establishments to be concentrated in industries in which

1. A U.S. affiliate is a U.S. business enterprise that is owned 10 percent or more, directly or indirectly, by a foreign person. "Person" is broadly defined to include any individual, corporation, branch, partnership, associated group, association, estate, trust, or other organization and any government (including any corporation, institution, or other entity or instrumentality of a government). The data are not adjusted for percentage of foreign ownership. Thus, for example, the employment data shown here include all employees at the manufacturing establishments of each U.S. affiliate, even though the foreign investor may own as little as 10 percent of the affiliate. However, most affiliates are majority owned; based on BEA data, U.S affiliates that are majority owned (that is, affiliates that are owned more than 50 percent by direct investors) accounted for 85 percent of all manufacturing employment by U.S. affiliates.

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productivity is high. There are also within-industry differences in productivity, but they appear to be attributable largely to factors that have frequently been found to influence productivity—namely, plant size, capital intensity, and employee skill level—rather than to foreign ownership per se.

The new data on foreign-owned manufacturing establishments, which cover 1989 and 1990, were released last fall as part of an ongoing effort to augment and improve U.S. Government data on FDIUS. The data were obtained by linking BEA enterprise, or company, data on FDIUS with more detailed Census Bureau establishment, or plant, data for all U.S. companies.[2] For the linked establishments (hereafter referred to as "foreign-owned establishments"), data from the Census Bureau's annual survey of manufactures (ASM) were then extracted.

The new data on foreign-owned manufacturing establishments cover most of the ASM items, including value added, shipments, employment, total employee compensation, employee benefits, hourly wage rates of production workers, cost of materials and energy used, inventories by stage of fabrication, and expenditures for new plant and equipment. Data are also included on the number of foreign-owned establishments. Totals for 1989 and 1990 for each of these items are shown in table 1. The data are also available by highly detailed industry, by State, and by country of investor. Summary data for 1990 appear in tables 2–13; data by detailed industry for 1990 covering selected items for foreign-owned and all U.S. establishments are shown in table 14, at the end of the article. (The box on page 51 provides information on the availability of the data in full detail for 1989 and 1990.)

The new ASM data update and extend the link project's initial results, published in 1992, which were for 1987—a benchmark, or census, year for both BEA and the Census Bureau. The 1987 data covered both manufacturing and nonmanufacturing establishments, but presented fewer measures of their operations than are available from the new ASM-based series. [3] Later this year,

2. A parallel project has linked BEA's FDIUS data to Bureau of Labor Statistics (BLS) data on all U.S. businesses. The initial results of that link, released in 1992 by BLS, provided data for 1989 and 1990 on the number, employment, and payroll of foreign-owned establishments for both manufacturing and nonmanufacturing industries. In October 1993, BLS released information on the occupational structure of foreign-owned manufacturing establishments in 1989. Data from the two link projects differ, particularly at the most detailed industry levels, because of differences in coverage, classification, timing, and definitions. Both projects were authorized by Congress under the Foreign Direct Investment and International Financial Data Improvements Act of 1990.

3. For summary data for 1987, see "Foreign Direct Investment in the United States: Establishment Data for 1987," SURVEY OF CURRENT BUSINESS

Establishment and Enterprise Data for U.S. Affiliates Compared

The establishment data presented in this article complement BEA's enterprise data for U.S. affiliates. BEA's enterprise data are needed for analyzing the overall significance of, and trends in, direct investment and for compiling the U.S. international transactions accounts, the international investment position of the United States, and the U.S. national income and product accounts. The data on positions and transactions between U.S. affiliates and their foreign parents used in compiling the national and international accounts exist only at the enterprise level. Analyses of some topics, such as profits and taxes, are meaningful only at that level. Furthermore, balance sheets and income statements containing the critical, nonduplicative financial and operating data needed for examining these topics exist only at the enterprise level.

The establishment data facilitate analysis of the activities and importance of foreign-owned U.S. companies in specific industries because they provide more detailed and more precise information on the industrial composition of U.S. affiliates' operations than BEA's enterprise data. Whereas BEA's enterprise data classify each company, however diversified, in a single industry, the establishment data permit each plant or location of a company to be classified separately. Furthermore, the level of industry classification can be much more detailed for individual establishments than is appropriate for consolidated enterprises, whose operations may span many narrowly defined industries. As a result, foreign-owned establishments can be classified into 459 manufacturing industries, whereas BEA's foreign-owned enterprises can be classified into only 55 manufacturing industries.

The establishment data also provide more detailed State-by-industry data than are available from the enterprise data, and the ASM data introduced in this article include the first available State-level measures of manufacturing production (value added) by foreign-owned firms.

Finally, the establishment-level data for foreign-owned and U.S.-owned companies presented in this article are closely comparable because they are from the same source. In contrast, the enterprise-level data for foreign-owned U.S. companies collected by BEA are frequently not comparable, except at highly aggregated levels, with data for all U.S. companies collected by other Government agencies. Because the other agencies' data are collected for different purposes, they often differ significantly in concept, definitions, consolidation, and industry classification from BEA's data for foreign-owned companies.

BEA and the Census Bureau will publish ASM data for foreign-owned manufacturing establishments for 1991 and for 1988.

This article analyzes the operations of foreign-owned manufacturing establishments on the basis of the 1990 ASM data. Although the data are for the year 1990, most of the findings probably also apply to more recent years, because both the overall level and the industry and country composition of foreign direct investment in U.S. manufacturing have changed little since then.[4]

The remainder of this article consists of two sections and a technical note. The first section provides an overview of the operations of foreign-owned manufacturing establishments by industry, country, and State. The second compares the following key aspects of the operations of foreign-owned establishments with those of U.S.-owned establishments: Plant size, capital intensity, employee compensation, hourly wage rates of production workers, and labor productivity. The technical note describes the statistical decomposition method used in the article to separate industry-mix effects from within-industry differences and discusses how the estimation of data for foreign-owned establishments and the inclusion of residual industries, which cover establishments not elsewhere classified, affect the findings of the article.

72 (October 1992): 44–78. For a slightly expanded version of that article, see Office of the Chief Economist, Economics and Statistics Administration, U.S. Department of Commerce, *Foreign Direct Investment in the United States: An Update* (Washington, DC: U.S. Government Printing Office, June 1993). The detailed 1987 data are available in a separate volume (see inside back cover for order information).

4. Although foreign direct investment in manufacturing grew rapidly between 1987 and 1990, data from BEA's enterprise surveys indicate that there was little growth in the industry in 1991 and 1992. According to BEA's annual survey of FDIUS, total manufacturing employment of U.S. affiliates in 1991 was almost the same as that in 1990, and changes in the composition of employment among subindustries of manufacturing and among investing countries were small. Moreover, data from BEA's latest survey of U.S. businesses acquired or established by foreign direct investors indicate that in 1992, new investment in manufacturing was at the lowest level in 8 years and was less than one-half that in 1991. In the May 1993 SURVEY, see "U.S. Affiliates of Foreign Companies: Operations in 1991" and "U.S. Business Enterprises Acquired or Established by Foreign Direct Investors in 1992."

Table 1.—Data for Foreign-Owned Manufacturing Establishments, 1989 and 1990

[Millions of dollars, except as noted]

	1989	1990
Number of establishments	**10,458**	**11,934**
Value added by manufacture	**161,929.2**	**177,360.7**
Value of shipments	**371,911.9**	**417,539.4**
Employment and employee compensation:		
Total employment (number of employees)	1,815,311	2,004,235
Production workers (number)	1,082,983	1,188,140
Other workers (number)	732,328	816,095
Production worker hours (millions of hours)	2,203.2	2,411.7
Employee compensation, total	67,769.1	78,128.8
Payroll	55,562.5	63,495.9
Production worker wages	26,616.4	30,304.8
Other workers	28,946.1	33,191.1
Benefits	12,206.6	14,632.9
Legally required	4,751.2	5,591.4
Other	7,455.4	9,041.5
Production worker wages per hour (dollars)	12.08	12.57
Expenditures for new plant and equipment:		
Total	16,070.6	19,748.4
Buildings and other structures	2,799.6	3,246.5
Machinery and equipment	13,271.0	16,502.0
Materials:		
Cost of materials, total	211,706.8	241,548.4
Of which:		
Purchased fuels and electric energy	8,993.6	10,106.3
Fuels	3,697.4	4,238.1
Electric energy	5,296.1	5,868.2
Quantity of electric energy used (billion kWh)	121,950.3	135,204.9
Inventories:		
End of year, total	49,926.9	55,487.3
Finished products	20,151.9	23,167.3
Work-in-process	12,954.2	13,650.3
Materials, supplies, fuels, etc.	16,820.9	18,669.7
Beginning of year, total	47,212.3	53,768.3
Finished products	18,701.2	21,736.4
Work-in-process	12,424.6	13,635.7
Materials, supplies, fuels, etc.	16,077.4	18,396.2

kWh Kilowatthours

Overview of Operations

In 1990, there were 11,900 foreign-owned manufacturing establishments in the United States. They employed 2 million workers and had shipments of $418 billion. Their value added, an approximate measure of production, was $177 billion, 13 percent of the value added by all U.S. manufacturing establishments (table 2).[5]

More than one-half of the value added by foreign-owned manufacturing establishments in 1990 was accounted for by four Standard Industrial Classification (SIC) two-digit industries: Chemicals and allied products ($49 billion), food and kindred products ($20 billion), electronic and other electric equipment ($17 billion), and industrial machinery and equipment ($14 billion). Production in the chemicals industry alone accounted for more than one-fourth of the value added by foreign-owned manufacturing establishments.

Among SIC two-digit industries, the share of total U.S. production accounted for by foreign-owned establishments was largest in chemicals (32 percent), followed by stone, clay, and glass products (25 percent) and primary metals (19 percent). The share was less than 5 percent in four industries: Apparel and other textile products, lumber and wood products, furniture and fixtures, and transportation equipment.

5. Value added measured by the Census Bureau's ASM differs from BEA's national income and product accounts measure of gross product because it includes purchased services but excludes indirect taxes and because it reflects inventory change valued at book value rather than at replacement cost.

Within a given two-digit industry, the shares for the component subindustries may vary considerably. In transportation equipment, for example, where foreign-owned establishments' share of value added was just under 5 percent, shares for SIC three-digit subindustries ranged from less than 1 percent for "guided missiles, space vehicles, and parts" to 12 percent for railroad equipment. The share for motor vehicles and equipment was 8 percent.

At the SIC four-digit level, foreign-owned establishments had operations in 429 of the 459 manufacturing industries. They accounted for less than 5 percent of total industry production in 149 industries and for more than 30 percent in 45 industries (table 3). Of the latter group, 13 industries were in chemicals, 6 in stone, clay, and glass products, and 6 in electronic and other electric equipment.

In nine industries, foreign-owned establishments accounted for more than one-half of total U.S. production. Their shares were highest in three chemicals industries: Inorganic pigments (71 percent), biological products except diagnostic (69 percent), and noncellulosic organic fibers (67 percent) (table 14). Among the industries outside chemicals, the share was highest in hydraulic cement (62 percent).

By country

In 1990, more than 80 percent of the employment, shipments, and value added by all foreign-owned manufacturing establishments were accounted for by establishments with ultimate beneficial owners (UBO's) in seven countries: Canada, France, Germany, Japan, the Netherlands, Switzerland, and the United Kingdom (table 4).[6] The establishments of these seven countries accounted for 86 percent of the value added by all foreign-owned manufacturing establishments and for 11 percent of the value added by all U.S. manufacturing establishments.

6. The UBO is that person, proceeding up a U.S. affiliate's ownership chain, beginning with and including the foreign parent, that is not owned more than 50 percent by another person. The foreign parent is the first foreign person in the affiliate's ownership chain. Unlike the foreign parent, the UBO of an affiliate may be located in the United States. The UBO of each U.S. affiliate is identified to ascertain the person that ultimately owns or controls and that, therefore, ultimately derives the benefits from owning or controlling the U.S. affiliate.

Table 3.—Distribution of Manufacturing Industries According to Foreign-Owned Establishments' Share of Value Added, 1990

Percentage of an industry's value added accounted for by foreign-owned establishments	Number of industries
0[1]	30
Less than 5.0[2]	119
5.0–9.9	89
10.0–14.9	73
15.0–19.9	43
20.0–24.9	33
25.0–29.9	27
30.0–34.9	10
35.0–39.9	13
40.0–44.9	6
45.0–49.9	7
50.0 or more	9

1. Industries with no foreign-owned establishments.
2. Includes three industries for which value added by foreign-owned establishments was negative in 1990.

NOTE.—The distribution is across the 459 industries defined at the four-digit level of the Standard Industrial Classification.

Table 2.—Selected Data for Foreign-Owned Manufacturing Establishments, by Industry, 1990

SIC code	Industry	Foreign-owned establishments				Foreign-owned establishments as a percentage of all U.S. establishments		
		Number of establishments	Number of employees	Millions of dollars				
				Value added	Shipments	Employment	Value added	Shipments
	Manufacturing	**11,934**	**2,004,235**	**177,360.7**	**417,539.4**	**10.6**	**13.4**	**14.5**
20	Food and kindred products	983	159,386	19,501.2	46,842.8	10.8	13.8	12.2
21	Tobacco products	5	H	(D)	(D)	(D)	(D)	(D)
22	Textile mill products	183	47,363	2,283.1	5,693.6	7.5	8.6	8.6
23	Apparel and other textile products	116	23,085	850.2	1,727.5	2.3	2.6	2.7
24	Lumber and wood products	184	17,043	842.5	2,304.0	2.5	2.9	3.1
25	Furniture and fixtures	83	J	(D)	(D)	(D)	(D)	(D)
26	Paper and allied products	328	48,644	4,709.2	11,395.2	7.7	7.9	8.7
27	Printing and publishing	834	103,983	10,408.8	16,499.9	6.8	10.1	10.5
28	Chemicals and allied products	1,520	242,392	48,835.7	87,678.9	28.4	31.9	30.4
29	Petroleum and coal products	319	25,638	4,106.8	46,372.6	22.9	15.1	26.9
30	Rubber and miscellaneous plastics products	658	120,951	8,757.9	17,790.6	13.9	17.6	17.5
31	Leather and leather products	29	6,362	287.3	608.1	5.4	6.3	6.2
32	Stone, clay, and glass products	1,421	105,578	8,450.2	16,407.5	20.7	24.8	25.9
33	Primary metal industries	402	119,087	10,297.6	31,902.9	16.7	19.3	21.8
34	Fabricated metal products	593	93,300	6,350.2	13,973.6	6.5	7.9	8.6
35	Industrial machinery and equipment	945	191,440	13,561.7	31,010.6	10.2	10.3	12.1
36	Electronic and other electric equipment	760	228,237	16,703.2	34,601.8	15.2	15.6	17.8
37	Transportation equipment	274	104,147	7,170.6	28,834.9	5.9	4.9	7.8
38	Instruments and related products	467	121,520	9,722.1	15,840.7	12.8	11.9	12.8
39	Miscellaneous manufacturing industries	128	26,087	1,929.3	3,553.2	6.8	9.6	9.6
	Administrative and auxiliary	1,702	200,064	n.a.	n.a.	15.9	n.a.	n.a.

D Suppressed to avoid disclosure of data of individual companies.
n.a. Not available.

NOTE.—Size ranges are given in employment cells that are suppressed. The size ranges are: A—0 to 19; B—20 to 99; C—100 to 249; E—250 to 499; F—500 to 999; G—1,000 to 2,499; H—2,500 to 4,999; I—5,000 to 9,999; J—10,000 to 24,999; K—25,000 to 49,999; L—50,000 to 99,999; M—100,000 or more.
SIC Standard Industrial Classification

Among establishments of individual investing countries, British-owned establishments accounted for the largest share of production by foreign-owned manufacturing establishments (23 percent), followed by Canadian-owned establishments (15 percent) and Japanese-owned establishments (13 percent). The share of total U.S. manufacturing production accounted for by British-owned establishments was 3 percent.

British-owned establishments also accounted for the largest share of production by foreign-owned establishments in 10 of the 20 SIC two-digit manufacturing industries. Among these 10 industries, their share of total U.S. manufacturing production was largest in tobacco products, petroleum and coal products, food and kindred products, and instruments and related products (table 5).

Japanese-owned establishments accounted for the largest share of production by foreign-owned establishments in four industries: Primary metals, industrial machinery and equipment, electronic and other electric equipment, and transportation equipment. Their share of total U.S.

Table 4.—Selected Data for Foreign-Owned Manufacturing Establishments, by Country of UBO, 1990

Country	Number of establishments	Number of employees	Millions of dollars		Share of all-countries total (percent)			
			Value added	Value of shipments	Number of establishments	Number of employees	Value added	Value of shipments
All countries	**11,934**	**2,004,235**	**177,360.7**	**417,539.4**	**100.0**	**100.0**	**100.0**	**100.0**
Canada	**1,538**	**269,362**	**26,869.2**	**58,983.3**	**12.9**	**13.4**	**15.1**	**14.1**
Europe	**8,007**	**1,297,424**	**115,466.1**	**251,039.0**	**67.1**	**64.7**	**65.1**	**60.1**
Austria	27	5,035	417.1	816.2	.2	.3	.2	.2
Belgium	95	14,633	1,626.7	4,975.5	.8	.7	.9	1.2
Denmark	39	7,159	377.4	916.6	.3	.4	.2	.2
Finland	123	18,112	1,194.5	2,891.2	1.0	.9	.7	.7
France	1,217	178,324	15,390.3	36,168.0	10.2	8.9	8.7	8.7
Germany	1,045	229,007	20,442.5	40,568.9	8.8	11.4	11.5	9.7
Ireland	243	26,534	2,090.1	5,227.6	2.0	1.3	1.2	1.3
Italy	141	17,307	1,260.1	3,755.4	1.2	.9	.7	.9
Liechtenstein	9	917	50.9	120.7	.1	(*)	(*)	(*)
Luxembourg	25	5,003	307.2	664.3	.2	.2	.2	.2
Netherlands	618	123,424	11,648.1	34,800.9	5.2	6.2	6.6	8.3
Norway	53	5,771	463.9	933.8	.4	.3	.3	.2
Spain	20	399	26.5	65.7	.2	(*)	(*)	(*)
Sweden	347	73,818	4,969.9	10,760.5	2.9	3.7	2.8	2.6
Switzerland	697	133,934	14,829.4	27,440.4	5.8	6.7	8.4	6.6
United Kingdom	3,291	456,618	40,325.9	80,610.2	27.6	22.8	22.7	19.3
Other	17	1,429	45.5	323.0	.1	.1	(*)	.1
Latin America and Other Western Hemisphere	**238**	**56,017**	**4,624.6**	**14,068.4**	**2.0**	**2.8**	**2.6**	**3.4**
South and Central America	143	38,737	3,614.5	11,999.7	1.2	1.9	2.0	2.9
Brazil	9	358	22.9	77.3	.1	(*)	(*)	(*)
Mexico	64	J	(D)	(D)	.5	.5–1.2	(D)	(D)
Panama	35	J	(D)	(D)	.3	.5–1.2	(D)	(D)
Venezuela	31	6,684	1,123.1	7,532.0	.3	.3	.6	1.8
Other	4	174	15.5	27.4	0	(*)	(*)	(*)
Other Western Hemisphere	95	17,280	1,010.1	2,068.7	.8	.9	.6	.5
Africa	**46**	**6,869**	**475.1**	**1,374.4**	**.4**	**.3**	**.3**	**.3**
Middle East	**67**	**I**	**(D)**	**(D)**	**.6**	**.2–.5**	**(D)**	**(D)**
Asia and Pacific	**2,005**	**362,948**	**29,384.5**	**83,833.6**	**16.8**	**18.1**	**16.6**	**20.1**
Australia	497	36,448	3,785.0	10,446.8	4.2	1.8	2.1	2.5
Hong Kong	3	C	(D)	(D)	(*)	(*)	(D)	(D)
Japan	1,356	291,415	22,814.6	65,760.0	11.4	14.5	12.9	15.7
Korea, Republic of	20	3,988	253.8	1,145.0	.2	.2	.1	.3
Malaysia	1	C	(D)	(D)	(*)	(*)	(D)	(D)
New Zealand	51	17,489	1,352.6	3,549.5	.4	.9	.8	.9
Philippines	13	H	(D)	(D)	.1	.1–.2	(D)	(D)
Singapore	8	1,184	106.1	283.2	.1	.1	.1	.1
Taiwan	37	5,840	501.1	1,327.6	.3	.3	.3	.3
Other	19	G	(D)	(D)	.2	0–.1	(D)	(D)
United States	**33**	**H**	**(D)**	**(D)**	**.3**	**.2**	**(D)**	**(D)**
Addenda:								
European Communities (12) [1]	6,735	L	(D)	(D)	56.4	2.5–5.0	(D)	(D)
OPEC [2]	77	J	(D)	(D)	.6	.5–1.2	(D)	(D)

(D) Suppressed to avoid disclosure of data of individual companies.
(*) Less than 0.05 percent.
1. The European Communities (12) comprises Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, and the United Kingdom.
2. OPEC is the Organization of Petroleum Exporting Countries. Through 1992, its members were Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.

NOTES.—The columns for number of establishments and for number of employees cover both operating establishments and administrative and auxiliary establishments; the other columns cover operating establishments only.

Size ranges are given in employment cells that are suppressed. The size ranges are: A—0 to 19; B—20 to 99; C—100 to 249; E—250 to 499; F—500 to 999; G—1,000 to 2,499; H—2,500 to 4,999; I—5,000 to 9,999; J—10,000 to 24,999; K—25,000 to 49,999; L—50,000 to 99,999; M—100,000 or more.

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manufacturing production was largest in primary metals and in electronic and other electric equipment.

Table 6 presents, for each of the seven major investing countries, ratios of the country's share of U.S. value added in each SIC two-digit industry to the country's share of value added in manufacturing as a whole. These ratios can be interpreted as indexes of relative intensity of investment by a country, taking into account both the size of the industry and the overall level of manufacturing production by the country's U.S. establishments. Because these ratios allow for variations in both industry size and production levels, the ratios, unlike simple distributions of value added, can be compared across countries as well as among industries. A value greater than 1.0 indicates that production by the investing country's establishments was more intense in the given industry than in manufacturing as a whole. For example, Japanese-owned establishments accounted for 1.7 percent of total U.S. manufacturing production but for 3.5 percent of U.S. production in rubber products; thus, the value of the index for

Table 5.—Value Added in Manufacturing Industries by All U.S. Establishments and by Foreign-Owned Establishments of Major Investing Countries, 1990

SIC code	Industry	All U.S. establishments	Foreign-owned establishments by country of UBO								U.S.-owned establishments
			All countries	Canada	France	Germany	Netherlands	Switzerland	United Kingdom	Japan	Other countries	
		Millions of dollars										
	Manufacturing	1,326,361.7	177,360.7	26,869.2	15,390.3	20,442.5	11,648.1	14,829.4	40,325.9	22,814.6	25,040.8	1,149,001.0
20	Food and kindred products	140,972.8	19,501.2	2,108.1	1,175.4	445.6	2,949.6	3,913.7	5,821.8	786.0	2,301.0	121,471.6
21	Tobacco products	22,561.3	(D)	0	0	(D)	0	0	(D)	0	0	(D)
22	Textile mill products	26,541.6	2,283.1	507.6	195.2	264.9	37.7	48.1	693.1	246.9	289.8	24,258.5
23	Apparel and other textile products	33,034.0	850.2	(D)	(D)	129.4	(D)	0	186.8	(D)	(D)	32,183.8
24	Lumber and wood products	28,597.2	842.5	(D)	18.0	62.0	(D)	(D)	281.2	76.1	(D)	27,754.7
25	Furniture and fixtures	21,644.7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
26	Paper and allied products	59,823.3	4,709.2	749.8	129.7	119.1	(D)	68.7	885.9	477.4	(D)	55,114.1
27	Printing and publishing	103,179.0	10,408.8	3,143.4	465.6	1,248.1	(D)	(D)	2,856.1	386.4	1,670.8	92,770.2
28	Chemicals and allied products	153,032.4	48,835.7	(D)	2,944.8	9,316.9	5,034.2	6,477.8	8,760.1	2,438.7	(D)	104,196.7
29	Petroleum and coal products	27,214.1	4,106.8	1,032.1	(D)	(D)	(D)	(D)	1,952.4	(D)	(D)	23,107.3
30	Rubber and miscellaneous plastics products	49,889.0	8,757.9	996.1	2,153.6	1,124.9	465.5	117.8	1,731.5	1,722.4	446.1	41,131.1
31	Leather and leather products	4,586.6	287.3	(D)	(D)	0	(D)	(D)	(D)	0	(D)	4,299.3
32	Stone, clay, and glass products	34,140.2	8,450.2	154.5	2,256.9	610.6	174.1	515.2	1,747.3	774.7	2,216.8	25,690.0
33	Primary metal industries	53,366.6	10,297.6	1,522.7	1,342.3	655.5	62.9	378.2	956.9	3,874.2	1,505.0	43,069.0
34	Fabricated metal products	79,951.9	6,350.2	877.0	(D)	685.9	(D)	231.0	1,917.2	426.4	962.3	73,601.7
35	Industrial machinery and equipment	132,165.8	13,561.7	501.8	799.3	1,739.4	187.9	689.8	2,612.0	2,947.5	4,084.0	118,604.1
36	Electronic and other electric equipment	106,983.9	16,703.2	2,399.1	901.9	2,273.6	(D)	714.8	2,549.6	4,333.1	(D)	90,280.7
37	Transportation equipment	146,916.3	7,170.6	801.0	723.5	330.2	26.9	(D)	1,131.1	3,183.2	(D)	139,745.7
38	Instruments and related products	81,665.6	9,722.1	1,355.6	390.6	1,271.3	(D)	1,068.3	3,314.9	780.1	(D)	71,943.5
39	Miscellaneous manufacturing industries	20,095.6	1,929.3	64.6	279.6	(D)	(D)	(D)	612.4	235.1	577.4	18,166.3
		Percent of all U.S. establishments										
	Manufacturing	100.0	13.4	2.0	1.2	1.5	0.9	1.1	3.0	1.7	1.9	86.6
20	Food and kindred products	100.0	13.8	1.5	.8	.3	2.1	2.8	4.1	.6	1.6	86.2
21	Tobacco products	100.0	(D)	0	0	(D)	0	0	(D)	0	0	(D)
22	Textile mill products	100.0	8.6	1.9	.7	1.0	.1	.2	2.6	.9	1.1	91.4
23	Apparel and other textile products	100.0	2.6	(D)	(D)	.4	(D)	0	.6	(D)	(D)	97.4
24	Lumber and wood products	100.0	2.9	(D)	.1	.2	(D)	(D)	1.0	.3	(D)	97.1
25	Furniture and fixtures	100.0	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
26	Paper and allied products	100.0	7.9	1.3	.2	.2	(D)	.1	1.5	.8	(D)	92.1
27	Printing and publishing	100.0	10.1	3.0	.5	1.2	(D)	(D)	2.8	.4	1.6	89.9
28	Chemicals and allied products	100.0	31.9	(D)	1.9	6.1	3.3	4.2	5.7	1.6	(D)	68.1
29	Petroleum and coal products	100.0	15.1	3.8	(D)	(D)	(D)	(D)	7.2	(D)	(D)	84.9
30	Rubber and miscellaneous plastics products	100.0	17.6	2.0	4.3	2.3	.9	.2	3.5	3.5	.9	82.4
31	Leather and leather products	100.0	6.3	(D)	(D)	0	(D)	(D)	(D)	0	(D)	93.7
32	Stone, clay, and glass products	100.0	24.8	.5	6.6	1.8	.5	1.5	5.1	2.3	6.5	75.2
33	Primary metal industries	100.0	19.3	2.9	2.5	1.2	.1	.7	1.8	7.3	2.8	80.7
34	Fabricated metal products	100.0	7.9	1.1	(D)	.9	(D)	.3	2.4	.5	1.2	92.1
35	Industrial machinery and equipment	100.0	10.3	.4	.6	1.3	.1	.5	2.0	2.2	3.1	89.7
36	Electronic and other electric equipment	100.0	15.6	2.2	.8	2.1	(D)	.7	2.4	4.1	(D)	84.4
37	Transportation equipment	100.0	4.9	.5	.5	.2	(*)	(D)	.8	2.2	(D)	95.1
38	Instruments and related products	100.0	11.9	1.7	.5	1.6	(D)	1.3	4.1	1.0	(D)	88.1
39	Miscellaneous manufacturing industries	100.0	9.6	.3	1.4	(D)	(D)	(D)	3.0	1.2	2.9	90.4
	Addendum:											
	Total number of industries in which the UBO country's establishments have the highest share of value added amoung investing countries	.....	.....	2	3	0	0	0	10	4	1	.....

* Less than 0.05 percent.
D Suppressed to avoid disclosure of data of individual companies.

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Japanese-owned establishments in rubber products was 2.0, indicating a relatively high intensity of investment in the industry.

In the table, France stands out because of the relatively high intensity of its investment in stone, clay, and glass products: In 1990, French-owned establishments' share of U.S. production in this industry was nearly six times as large as their share in total manufacturing. France also shows relatively intense investment in the rubber products industry, where French-owned establishments' share of production was nearly four times as large as their share in total manufacturing.

Japan shows relatively intense investment in the primary metals industry; Japanese-owned establishments' share of production in this industry was more than four times as large as that in total manufacturing. In contrast, their share of production in transportation equipment was only slightly higher than their share in total manufacturing.

Germany shows relatively intense investment in chemicals, as do Switzerland and the Netherlands. The establishments of each of these three countries had shares of production in chemicals that were nearly four times as large as their shares in total manufacturing.

By State

The States with the largest production by foreign-owned manufacturing establishments were California, Texas, New Jersey, North Carolina, Ohio, and New York (table 7). These six States accounted for 41 percent of the total production by foreign-owned manufacturing establishments in the United States. By two-digit industry, California accounted for a particularly large share of the production in electronic and other electric equipment (23 percent), and New York accounted for a very large share in printing and publishing (26 percent) (table 8). Texas, New Jersey, and North Carolina together accounted for nearly 40 percent of the production by foreign-owned establishments in chemicals, and Ohio accounted for nearly 20 percent in transportation equipment.

Among two-digit industries, chemicals accounted for the largest share of production by foreign-owned manufacturing establishments in 20 States, and food products accounted for the largest share in 11 States. The chemicals industry accounted for more than one-half of foreign-owned production in five States: Delaware, West Virginia, New Jersey, Texas, and Virginia.

The States in which foreign-owned establishments accounted for the largest share of manufacturing production were Delaware (37 percent), West Virginia (36 percent), New Jersey (24 percent), Georgia (19 percent), South Carolina (19 percent), and North Carolina (19 percent). In several of these States, foreign-owned establishments accounted for very large shares of chemicals production—74 percent in Delaware, 56 percent in West Virginia, 47 percent in New Jersey, and 60 percent in North Carolina (table 9). In North Carolina, foreign-owned establishments also accounted for large shares of production

Table 6.—Index of Relative Intensity of Production in Manufacturing for All Foreign-Owned Establishments and for Establishments of Major Investing Countries, 1990

SIC code	Industry	All countries	Canada	France	Germany	Netherlands	Switzerland	United Kingdom	Japan	Other countries
	Manufacturing	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**	**1.000**
20	Food and kindred products	1.034	.738	.719	.205	2.382	2.483	1.358	.324	.865
21	Tobacco products	(D)	0	0	(D)	0	0	(D)	0	0
22	Textile mill products	.643	.944	.634	.648	.162	.162	.859	.541	.578
23	Apparel and other textile products	.192	(D)	(D)	.254	(D)	0	.186	(D)	(D)
24	Lumber and wood products	.220	(D)	.054	.141	(D)	(D)	.323	.155	(D)
25	Furniture and fixtures	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
26	Paper and allied products	.589	.619	.187	.129	(D)	.103	.487	.464	(D)
27	Printing and publishing	.754	1.504	.389	.785	(D)	(D)	.910	.218	.858
28	Chemicals and allied products	2.386	(D)	1.658	3.950	3.746	3.786	1.883	.926	(D)
29	Petroleum and coal products	1.129	1.872	(D)	(D)	(D)	(D)	2.360	(D)	(D)
30	Rubber and miscellaneous plastics products	1.313	.986	3.720	1.463	1.062	.211	1.142	2.007	.474
31	Leather and leather products	.468	(D)	(D)	0	(D)	(D)	(D)	0	(D)
32	Stone, clay, and glass products	1.851	.223	5.697	1.160	.581	1.350	1.683	1.319	3.439
33	Primary metal industries	1.443	1.408	2.168	.797	.134	.634	.590	4.220	1.494
34	Fabricated metal products	.594	.541	(D)	.557	(D)	.258	.789	.310	.638
35	Industrial machinery and equipment	.767	.187	.521	.854	.162	.467	.650	1.297	1.637
36	Electronic and other electric equipment	1.168	1.107	.727	1.379	(D)	.598	.784	2.355	(D)
37	Transportation equipment	.365	.269	.424	.146	.021	(D)	.253	1.260	(D)
38	Instruments and related products	.890	.819	.412	1.010	(D)	1.170	1.335	.555	(D)
39	Miscellaneous manufacturing industries	.718	.159	1.199	(D)	(D)	(D)	1.002	.680	1.522

D Suppressed to avoid disclosure of data of individual companies.

NOTE.—The index is the share of total U.S. value added in the given manufacturing industry accounted for by establishments of the given UBO country divided by the share of total U.S. value added in total manufacturing accounted for by establishments of the UBO country. This index is similar in form to the export index of revealed comparative advantage introduced in Bela Balassa, "Trade Liberalization and 'Revealed' Comparative Advantage," *Manchester School* 33 (May 1965): 99–123.

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in both the electronics and the instruments industries (40 percent in each). In South Carolina, foreign-owned establishments accounted for more than 50 percent of the State's production in the rubber products industry.

Comparison of Foreign-Owned and U.S.-Owned Establishments

This section compares the operations of foreign-owned manufacturing establishments with those of U.S.-owned ones in terms of plant size (or scale), capital intensity, compensation per employee, production-worker wage rates, and labor productivity.[7] The section also examines whether differences between the hourly wage rates of production workers in foreign-owned and U.S.-owned establishments reflect differences in their

7. The analysis in this section is based on data for operating establishments only. Data for administrative and auxiliary establishments are not available by detailed industry for either foreign-owned or all U.S. establishments.

Table 7.—Selected Data for Foreign-Owned Manufacturing Establishments, by State, 1990

State	Foreign-owned establishments				Foreign-owned establishments as a percentage of all U.S. establishments		
	Number of establishments	Number of employees	Millions of dollars		Number of employees	Value added	Shipments
			Value added	Shipments			
Total	**11,934**	**2,004,235**	**177,360.7**	**417,539.4**	**10.6**	**13.4**	**14.5**
Alabama	185	33,678	3,019.5	6,661.1	9.2	14.1	13.7
Alaska	24	3,092	182.8	658.6	22.7	13.1	17.9
Arizona	115	10,998	747.2	2,002.9	6.1	6.3	8.8
Arkansas	106	17,881	1,225.5	3,262.6	8.2	9.8	10.7
California	1,361	205,024	18,533.9	42,051.9	9.7	12.4	14.3
Colorado	119	10,964	1,019.5	2,342.8	6.1	7.4	8.5
Connecticut	194	34,571	2,650.5	4,407.9	10.0	11.1	11.0
Delaware	69	30,386	1,658.0	4,339.9	46.2	36.7	33.6
District of Columbia	13	215	17.4	37.4	1.5	1.1	1.7
Florida	504	44,688	3,091.7	7,342.6	9.0	10.4	12.1
Georgia	491	70,347	6,926.8	13,730.2	12.5	19.2	16.3
Hawaii	30	2,087	275.7	1,218.0	10.1	17.7	29.0
Idaho	25	3,414	269.4	509.8	5.6	6.9	5.6
Illinois	649	110,468	8,684.1	25,260.4	11.0	12.3	16.1
Indiana	317	86,378	7,683.9	16,766.2	14.0	17.1	17.0
Iowa	106	22,359	1,863.0	3,631.8	9.7	9.6	7.9
Kansas	89	13,547	1,144.2	2,902.8	7.1	8.8	8.0
Kentucky	184	42,508	3,790.1	10,006.8	15.2	16.0	18.6
Louisiana	127	17,136	4,179.7	18,892.9	10.0	18.5	28.7
Maine	59	7,384	554.9	1,406.8	7.2	9.4	11.3
Maryland	196	27,941	2,232.4	4,859.0	13.2	14.2	15.8
Massachusetts	313	57,078	4,900.7	8,828.3	10.8	14.0	13.8
Michigan	396	70,914	5,300.0	14,368.9	7.8	8.2	9.4
Minnesota	174	31,983	1,813.5	4,009.6	8.1	7.0	7.3
Mississippi	110	13,706	1,109.5	2,582.0	5.9	8.7	8.5
Missouri	268	36,928	3,635.1	7,388.7	8.7	12.0	11.0
Montana	15	943	77.3	794.4	4.7	6.5	19.7
Nebraska	54	8,022	956.7	1,960.4	8.1	12.8	9.6
Nevada	27	1,501	123.6	244.7	5.9	8.4	8.4
New Hampshire	91	11,915	690.1	1,375.0	12.9	12.4	14.1
New Jersey	590	98,905	11,023.0	19,989.2	15.8	24.4	22.8
New Mexico	34	2,640	183.6	369.7	6.6	8.2	6.7
New York	650	104,499	9,528.6	18,845.2	9.1	11.1	12.2
North Carolina	483	110,447	10,682.9	21,147.8	13.3	18.5	18.2
North Dakota	7	F	(D)	(D)	(D)	(D)	(D)
Ohio	644	118,364	9,888.5	26,449.0	10.9	12.3	14.9
Oklahoma	103	15,842	1,339.5	4,256.8	9.5	11.3	15.2
Oregon	119	15,269	1,071.7	3,313.9	7.1	8.1	10.7
Pennsylvania	667	119,688	9,511.1	20,216.7	11.9	14.8	14.8
Rhode Island	51	6,628	390.4	909.7	6.6	7.6	9.3
South Carolina	229	59,626	3,996.1	9,724.6	16.2	19.0	20.8
South Dakota	21	2,947	141.6	338.2	9.9	8.7	7.5
Tennessee	308	72,779	5,252.6	14,102.1	14.4	17.4	20.9
Texas	783	101,890	12,849.7	35,184.0	10.8	15.4	16.7
Utah	51	7,049	588.7	1,302.2	6.9	9.6	9.3
Vermont	26	3,657	224.7	490.1	8.3	7.0	8.8
Virginia	242	47,873	4,555.3	8,465.5	11.3	14.0	13.9
Washington	197	22,979	1,867.1	5,454.6	6.3	7.5	8.1
West Virginia	61	18,047	2,291.7	4,489.5	22.0	36.1	34.7
Wisconsin	249	46,016	3,551.0	8,520.9	8.4	9.6	10.3
Wyoming	8	C	(D)	(D)	(D)	(D)	(D)

(D) Suppressed to avoid disclosure of data of individual companies.

NOTES.—The columns for number of establishments and for number of employees cover both operating establishments and administrative and auxiliary establishments; the other columns cover operating establishments only.

Size ranges are given in employment cells that are suppressed. The size ranges are: A—0 to 19; B—20 to 99; C—100 to 249; E—250 to 499; F—500 to 999; G—1,000 to 2,499; H—2,500 to 4,999; I—5,000 to 9,999; J—10,000 to 24,999; K—25,000 to 49,999; L—50,000 to 99,999; M—100,000 or more.

Table 8.—Value Added by Foreign-Owned Manufacturing Establishments, State by Selected Industry, 1990

[Millions of dollars]

State	Total	Selected industries													
		Food and kindred products	Textile mill products	Paper and allied products	Printing and publishing	Chemicals and allied products	Petroleum and coal products	Rubber and miscellaneous plastics products	Stone, clay, and glass products	Primary metal industries	Fabricated metal products	Industrial machinery and equipment	Electronic and other electric equipment	Transportation equipment	Instruments and related products
SIC code		20	22	26	27	28	29	30	32	33	34	35	36	37	38
Total	177,360.7	19,501.2	2,283.1	4,709.2	10,408.8	48,835.7	4,106.8	8,757.9	8,450.2	10,297.6	6,350.2	13,561.7	16,703.2	7,170.6	9,722.1
Alabama	3,019.5	(D)	103.1	348.4	18.6	896.6	(D)	634.0	183.4	(D)	(D)	96.1	248.3	(D)	(D)
Alaska	182.8	(D)	0	(D)	0	(D)	0	0	0	0	(D)	0	0	0	0
Arizona	747.2	43.2	0	0	(D)	20.6	0	52.7	159.0	147.6	68.1	107.2	(D)	(D)	(D)
Arkansas	1,225.5	170.1	0	36.1	(D)	81.8	(D)	(D)	48.7	56.7	149.7	214.8	214.5	54.6	(D)
California	18,533.9	2,471.0	(D)	344.6	936.4	3,430.1	(D)	376.5	1,008.0	475.7	608.6	1,880.0	3,920.9	880.1	1,936.5
Colorado	1,019.5	210.3	0	(D)	140.5	107.8	(D)	(D)	85.1	(D)	(D)	100.6	64.1	0	57.1
Connecticut	2,650.5	163.2	32.3	15.8	141.4	973.5	10.6	18.8	80.2	207.4	122.7	206.6	102.0	(D)	248.0
Delaware	1,658.0	(D)	0	0	0	1,316.3	(D)	(D)	(D)	(D)	(D)	(D)	0	0	(D)
District of Columbia	17.4	0	0	0	(D)	0	0	(D)	(D)	0	0	0	0	0	0
Florida	3,091.7	645.4	0	(D)	164.5	225.5	(D)	72.0	400.2	84.3	78.8	300.4	497.4	147.3	128.7
Georgia	6,926.8	550.3	(D)	355.5	144.0	1,026.2	(D)	145.6	407.3	208.1	111.8	241.2	823.1	10.1	262.7
Hawaii	275.7	(D)	0	(D)	(D)	(D)	(D)	(D)	(D)	(D)	0	0	0	(D)	0
Idaho	269.4	125.4	0	0	(D)	6.3	0	0	(D)	0	0	(D)	(D)	0	0
Illinois	8,684.1	1,435.7	0	220.8	801.2	1,660.1	149.7	645.5	327.5	572.8	310.4	880.2	790.5	(D)	489.1
Indiana	7,683.9	1,025.4	(D)	(D)	330.3	893.5	3.6	534.8	(D)	1,758.2	335.8	780.9	634.5	224.8	654.7
Iowa	1,863.0	360.3	0	42.2	125.9	209.7	(D)	371.9	76.0	(D)	(D)	254.0	(D)	(D)	(D)
Kansas	1,144.2	195.6	0	(D)	172.6	128.3	(D)	(D)	124.6	(D)	13.3	87.9	(D)	(D)	(D)
Kentucky	3,790.1	527.9	(D)	(D)	95.3	739.1	(D)	(D)	168.8	814.6	146.0	189.1	85.4	(D)	0
Louisiana	4,179.7	261.2	(D)	(D)	(D)	1,855.7	(D)	10.7	38.3	0	(D)	(D)	(D)	(D)	0
Maine	554.9	95.8	0	265.6	(D)	(D)	(D)	43.7	(D)	(D)	12.2	23.8	(D)	(D)	0
Maryland	2,232.4	460.3	(D)	(D)	220.0	570.2	(D)	89.6	183.1	(D)	44.8	99.1	195.4	(D)	117.8
Massachusetts	4,900.7	218.3	111.9	141.1	501.6	446.5	(D)	151.1	(D)	201.0	276.5	827.5	530.2	78.0	504.8
Michigan	5,300.0	550.5	0	83.6	255.7	837.1	(D)	261.8	231.1	690.9	368.9	649.1	292.1	713.5	206.9
Minnesota	1,813.5	421.1	(D)	(D)	179.1	91.5	(D)	86.7	70.7	(D)	(D)	213.7	266.1	(D)	101.2
Mississippi	1,109.5	39.4	0	(D)	(D)	363.7	(D)	115.4	95.7	35.0	133.4	(D)	(D)	(D)	42.7
Missouri	3,635.1	900.9	(D)	102.5	81.9	1,108.7	(D)	63.3	187.3	307.2	200.8	161.3	149.5	(D)	129.6
Montana	77.3	(D)	0	0	0	(D)	(D)	(D)	(D)	(D)	(D)	0	0	0	0
Nebraska	956.7	363.8	0	0	(D)	401.1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Nevada	123.6	43.3	0	(D)	0	(D)	0	(D)	32.6	19.5	0	0	0	0	(D)
New Hampshire	690.1	35.7	(D)	40.1	46.7	(D)	(D)	96.7	27.9	(D)	(D)	209.8	64.5	0	76.9
New Jersey	11,023.0	1,156.4	(D)	177.1	419.8	6,726.3	76.6	209.6	232.3	255.2	178.3	340.5	357.5	33.8	787.7
New Mexico	183.6	(D)	0	0	(D)	(D)	(D)	(D)	18.4	0	0	(D)	(D)	0	(D)
New York	9,528.6	1,069.9	52.9	182.0	2,707.7	1,813.4	(D)	495.7	293.1	373.8	332.1	595.3	798.2	136.2	441.2
North Carolina	10,682.9	290.1	489.5	141.4	160.2	4,886.5	(D)	562.4	295.7	160.9	235.7	525.6	1,894.0	191.3	528.2
North Dakota	(D)	(D)	0	0	(D)	0	0	0	0	0	0	0	0	(D)	0
Ohio	9,888.5	1,148.6	(D)	229.1	395.3	1,609.1	(D)	541.0	479.2	1,035.5	491.1	617.0	619.0	1,338.6	535.4
Oklahoma	1,339.5	89.0	0	(D)	47.6	195.5	(D)	430.0	123.6	(D)	102.3	87.4	(D)	(D)	61.1
Oregon	1,071.7	169.8	(D)	(D)	(D)	117.5	(D)	10.7	36.4	84.7	(D)	203.6	168.7	(D)	(D)
Pennsylvania	9,511.1	1,065.3	95.7	388.4	794.3	1,505.4	(D)	214.4	511.8	526.7	510.7	971.0	765.4	628.4	868.5
Rhode Island	390.4	(D)	(D)	0	45.5	(D)	(D)	38.4	(D)	(D)	15.9	21.7	46.8	0	83.5
South Carolina	3,996.1	273.7	328.7	(D)	37.5	1,017.6	(D)	771.1	174.3	(D)	85.8	558.6	389.1	(D)	(D)
South Dakota	141.6	73.7	0	0	(D)	(D)	0	(D)	(D)	0	(D)	32.1	(D)	0	0
Tennessee	5,252.6	228.0	155.0	88.5	144.3	1,585.5	(D)	375.2	227.7	213.6	267.4	551.9	392.7	564.2	188.2
Texas	12,849.7	509.1	0	40.0	303.0	7,594.0	458.5	315.0	625.4	505.3	330.6	477.2	1,114.6	84.3	381.9
Utah	588.7	25.1	(D)	0	(D)	20.2	0	0	24.1	(D)	(D)	(D)	32.6	(D)	(D)
Vermont	224.7	(D)	0	(D)	(D)	38.8	0	(D)	(D)	(D)	0	30.4	(D)	(D)	0
Virginia	4,555.3	281.1	(D)	(D)	173.0	2,361.0	0	304.8	192.5	(D)	33.0	295.8	282.2	201.0	80.3
Washington	1,867.1	406.1	(D)	250.1	31.9	134.3	(D)	47.6	153.7	71.3	(D)	23.8	177.2	(D)	(D)
West Virginia	2,291.7	0	0	(D)	(D)	1,435.2	(D)	(D)	84.9	485.6	109.8	(D)	(D)	0	(D)
Wisconsin	3,551.0	1,038.2	(D)	379.1	262.0	243.5	0	165.5	(D)	136.3	166.4	579.0	236.1	(D)	221.6
Wyoming	(D)	(D)	0	0	0	(D)	0	(D)	(D)	0	0	0	0	0	0

(D) Suppressed to avoid disclosure of data of individual companies.

NOTE.—Administrative and auxiliary establishments are excluded.
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Table 9.—Value Added by Foreign-Owned Manufacturing Establishments as a Percentage of That by All U.S. Manufacturing Establishments, State by Selected Industry, 1990

State	Total	Selected industries													
		Food and kindred products	Textile mill products	Paper and allied products	Printing and publishing	Chemicals and allied products	Petroleum and coal products	Rubber and miscellaneous plastics products	Stone, clay, and glass products	Primary metal industries	Fabricated metal products	Industrial machinery and equipment	Electronic and other electric equipment	Transportation equipment	Instruments and related products
SIC code		20	22	26	27	28	29	30	32	33	34	35	36	37	38
Total	13.4	13.8	8.6	7.9	10.1	31.9	15.1	17.6	24.8	19.3	7.9	10.3	15.6	4.9	11.9
Alabama	14.1	(D)	6.5	11.0	2.7	43.6	(D)	52.5	39.4	(D)	(D)	7.2	26.1	(D)	(D)
Alaska	13.1	(D)	0	(D)	0	(D)	0	0	0	0	(D)	0	0	0	0
Arizona	6.3	5.9	0	0	(D)	3.9	0	23.5	45.3	22.1	19.0	13.3	(D)	(D)	(D)
Arkansas	9.8	7.0	0	2.2	(D)	11.3	(D)	(D)	20.8	13.0	14.3	23.2	21.1	10.2	(D)
California	12.4	13.5	(D)	11.5	7.9	49.8	(D)	8.2	27.2	23.5	7.9	10.1	21.6	3.8	12.9
Colorado	7.4	8.1	0	(D)	9.5	41.4	(D)	(D)	23.0	(D)	(D)	6.3	7.0	0	2.4
Connecticut	11.1	18.5	14.6	1.4	8.8	41.7	(D)	3.6	25.3	26.4	5.2	7.3	5.8	(D)	11.8
Delaware	36.7	(D)	0	0	0	74.4	(D)	(D)	(D)	(D)	(D)	(D)	0	0	(D)
District of Columbia	1.1	0	0	0	(D)	0	n.a.	(D)	(D)	0	0	0	0	0	0
Florida	10.4	14.6	0	(D)	4.8	8.8	(D)	8.0	35.2	31.5	5.8	19.6	11.1	6.3	4.4
Georgia	19.2	12.3	(D)	10.1	8.2	34.9	(D)	13.0	37.4	17.4	10.9	16.0	32.8	0.2	41.1
Hawaii	17.7	(D)	0	(D)	(D)	(D)	(D)	(D)	(D)	(D)	0	0	0	(D)	0
Idaho	6.9	13.4	0	0	(D)	1.2	0	0	(D)	0	0	(D)	(D)	0	0
Illinois	12.3	14.2	0	8.3	11.0	20.4	15.2	18.3	25.0	17.2	5.1	8.4	11.4	(D)	20.1
Indiana	17.1	28.7	(D)	(D)	16.2	13.5	0.6	22.9	(D)	28.3	10.9	19.7	19.7	3.5	36.8
Iowa	9.6	7.2	0	10.5	10.0	10.5	(D)	43.7	21.4	(D)	(D)	6.4	(D)	(D)	(D)
Kansas	8.8	9.5	0	(D)	9.4	9.1	(D)	(D)	30.9	(D)	3.7	6.7	(D)	(D)	(D)
Kentucky	16.0	27.8	(D)	(D)	6.4	29.2	(D)	(D)	28.7	57.8	13.6	8.4	4.8	(D)	0
Louisiana	18.5	14.7	(D)	(D)	(D)	19.8	(D)	5.1	17.4	0	(D)	(D)	(D)	(D)	0
Maine	9.4	25.9	0	14.8	(D)	(D)	(D)	18.6	(D)	(D)	6.2	10.5	(D)	(D)	0
Maryland	14.2	19.9	(D)	(D)	12.1	28.3	(D)	20.1	45.1	(D)	7.1	10.6	27.3	(D)	5.5
Massachusetts	14.0	13.0	15.2	9.9	13.6	29.4	(D)	9.9	(D)	22.5	12.5	16.0	10.5	4.6	8.7
Michigan	8.2	10.6	0	4.8	8.9	17.5	(D)	9.4	17.8	24.7	5.8	8.4	22.1	3.3	15.2
Minnesota	7.0	11.4	(D)	(D)	6.3	9.0	(D)	10.6	8.0	(D)	(D)	4.8	15.0	(D)	4.8
Mississippi	8.7	3.5	0	(D)	(D)	35.6	(D)	18.1	30.6	9.6	20.6	(D)	(D)	(D)	44.7
Missouri	12.0	19.3	(D)	9.5	3.6	25.5	(D)	7.8	25.1	36.1	9.0	9.9	8.2	(D)	18.1
Montana	6.5	(D)	0	0	0	(D)	(D)	(D)	(D)	(D)	(D)	0	0	0	0
Nebraska	12.8	13.6	0	0	(D)	72.3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Nevada	8.4	27.9	0	(D)	0	(D)	0	(D)	24.4	22.3	0	0	0	0	(D)
New Hampshire	12.4	9.7	(D)	10.6	8.4	(D)	(D)	27.2	20.5	(D)	(D)	24.3	10.2	0	8.3
New Jersey	24.4	25.2	(D)	11.5	9.4	46.7	10.4	12.6	19.2	23.8	7.7	13.2	12.5	4.6	22.3
New Mexico	8.2	(D)	0	0	(D)	(D)	(D)	(D)	16.0	0	0	(D)	(D)	0	(D)
New York	11.1	17.5	7.0	8.1	16.3	24.5	(D)	25.7	19.3	20.7	9.6	7.5	10.6	2.8	3.1
North Carolina	18.5	8.8	6.6	6.7	11.6	59.2	(D)	23.8	21.0	22.5	14.1	11.6	41.1	14.9	45.7
North Dakota	(D)	(D)	0	0	(D)	0	0	0	0	0	0	0	0	(D)	0
Ohio	12.3	16.4	(D)	10.0	9.4	21.6	(D)	12.6	16.1	14.5	5.8	6.4	10.5	9.2	28.5
Oklahoma	11.3	9.6	0	(D)	7.7	42.7	(D)	37.2	18.3	(D)	10.3	4.4	(D)	(D)	10.7
Oregon	8.1	9.3	(D)	(D)	(D)	37.5	(D)	3.7	14.9	10.0	(D)	15.9	20.2	(D)	(D)
Pennsylvania	14.8	14.1	11.2	12.2	13.5	21.0	(D)	9.9	18.0	9.4	9.9	16.4	15.8	16.8	30.6
Rhode Island	7.6	(D)	(D)	0	13.4	(D)	(D)	16.6	(D)	(D)	2.5	8.1	11.3	0	15.0
South Carolina	19.0	31.2	9.1	(D)	7.1	22.3	(D)	52.0	23.7	(D)	8.8	27.0	32.6	(D)	(D)
South Dakota	8.7	17.6	0	0	(D)	(D)	0	(D)	(D)	0	(D)	10.7	(D)	0	0
Tennessee	17.4	6.0	18.3	5.4	7.5	31.0	(D)	22.4	27.4	17.8	15.2	22.6	21.7	29.3	26.2
Texas	15.4	6.2	0	1.8	7.5	36.9	5.3	11.2	30.4	23.6	8.8	7.4	14.4	1.4	9.0
Utah	9.6	4.2	(D)	0	(D)	9.1	0	0	14.9	(D)	(D)	(D)	10.5	(D)	(D)
Vermont	7.0	(D)	0	(D)	(D)	(D)	0	(D)	(D)	(D)	0	15.4	(D)	(D)	0
Virginia	14.0	10.0	(D)	(D)	8.0	54.3	0	23.3	28.0	(D)	3.5	20.3	17.3	6.6	4.8
Washington	7.5	18.2	(D)	13.6	3.0	8.8	(D)	12.3	29.2	6.1	(D)	1.7	31.1	(D)	(D)
West Virginia	36.1	0	0	(D)	(D)	55.9	(D)	(D)	19.1	42.1	30.7	(D)	(D)	0	(D)
Wisconsin	9.6	21.3	(D)	7.8	10.5	15.1	0	12.5	(D)	11.3	5.3	8.0	8.0	(D)	11.4
Wyoming	(D)	(D)	n.a.	n.a.	0	(D)	0	(D)	(D)	0	0	0	0	0	0

(D) Suppressed to avoid disclosure of data of individual companies.
n.a. Not applicable.

NOTE.—Administrative and auxiliary establishments are excluded.
SIC Standard Industrial Classification

plant scale and capital intensity or whether they can be attributed to foreign ownership per se. Finally, it examines whether differences between the productivity of foreign-owned and U.S.-owned establishments reflect differences in their plant scale, capital intensity, or employee skill levels or whether they can be attributed to foreign ownership per se.

Plant scale

For total manufacturing, average plant scale (measured as value added per establishment) of foreign-owned establishments was much larger than that of U.S.-owned establishments—$17.3 million, compared with $3.2 million, or a difference of $14.1 million.[8] A statistical decomposition of the difference indicated that 60 percent of it was attributable to a tendency in some industries for the plant scale of foreign-owned establishments to be larger than that of U.S.-owned establishments, while only 27 percent was attributable to a tendency for foreign-owned establishments to be concentrated in industries with above-average plant scale.[9] (The method used to decompose the difference in plant scale is described in the technical note.)

The importance of the within-industry differences can be seen by examining the distribution of industries on the basis of the relative plant scale of foreign-owned and U.S.-owned establishments. As the following tabulation indicates, the average plant scale of foreign-owned establishments was more than 10 percent larger than that of U.S.-owned establishments in 277 of the 312 industries with 6 or more foreign-owned establishments (hereafter referred to as "the 312 industries"). In 98 of these 277 industries, plant scale of foreign-owned establishments was more than four times as large. Moreover, there were only 20 industries in which the average plant scale of foreign-owned establishments was more than 10 percent smaller than that of U.S.-owned establishments.[10]

Plant scale of foreign-owned establishments relative to that of U.S.-owned establishments	Number of industries
All industries	312
At least 30 percent smaller	8
Between 10 and 30 percent smaller	12
Within 10 percent smaller or larger	15
Between 10 and 30 percent larger	12
At least 30 percent larger	265

Plant scale of foreign-owned establishments may be larger, on average, than that of U.S.-owned establishments at least partly because the income and other benefits that normally accrue to large plants may be sought out to offset the inherent disadvantages foreign investors tend to face when investing in the United States and when subsequently operating their U.S. businesses. Foreign investors may be unfamiliar with the language and the general business environment in the United States, and their investments must, at least to some extent, be managed from a distance. Many of the added costs a foreign investor incurs when making a new U.S. investment and subsequently operating a business here tend to be fixed, and foreign investors may tend to concentrate their investments in relatively large establishments as a means of spreading these costs over a larger volume of output. In some cases, such a strategy may also benefit foreign direct investors by simplifying the organizational structure, reducing the number of units that must be managed, and lowering the number of local business environments to which they must become acclimated.

Most industries with direct investment have both large foreign-owned and large U.S.-owned plants. However, in many of these industries, there are substantial numbers of small U.S.-owned plants but relatively few small foreign-owned plants. This pattern can be seen in "motor vehicles and car bodies" manufacturing (SIC 3711), which includes both car and truck manufacturing. In 1990, the average plant scale of foreign-owned establishments in the industry was over 60 percent larger than that of U.S.-owned establishments. Of the 406 plants in the industry, 385 were U.S. owned and 21 were foreign owned. Both groups had a number of large plants: 52 of the U.S.-owned plants and 11

8. Because the number of manufacturing establishments is not shown in the Census Bureau's ASM publications, average plant scale for U.S.-owned establishments was computed using the total value added from the ASM and the number of U.S. manufacturing establishments shown in the Census Bureau's *County Business Patterns, 1990: United States* (Washington DC: U.S. Government Printing Office, 1992). Because the *County Business Patterns* and ASM data are closely comparable, use of *County Business Patterns* establishment counts is unlikely to have significantly affected the findings of the article.

9. The remaining difference was attributable to the interaction of the within-industry differences and industry-mix effects.

In industries with only a few foreign-owned establishments, value added per establishment and the other measures for foreign-owned establishments discussed in this section may be so affected by the special circumstances of individual establishments that they are not representative of foreign-owned establishments generally. Because of this possibility, the decomposition was limited to the 312 four-digit industries with at least 6 foreign-owned establishments. For these industries, value added per establishment was $17.3 million for foreign-owned establishments and $3.6 million for U.S.-owned establishments, a difference of $13.7 million.

10. Across the 312 industries, the mean difference between the foreign-owned and U.S.-owned plant scale measures was $11.0 million. Unlike the differences cited in the text and in footnote 9, which were computed using a method that gave heavier weight to the larger industries, this figure was computed without regard to industry size; a statistical test indicated that it was statistically significant at the 1-percent confidence level.

of the foreign-owned plants had at least 1,000 employees. However, there were many small U.S.-owned plants but few small foreign-owned plants in the industry: Over three-fourths of the U.S.-owned plants, but less than one-fifth of the foreign-owned plants, had fewer than 100 employees.

Capital intensity

For total manufacturing, capital intensity (indirectly measured as the non-employee-compensation share of value added) was higher for foreign-owned establishments than for U.S.-owned establishments—61 percent, compared with 55 percent.[11] Virtually all of this difference was attributable to industry-mix effects; within-industry differences were negligible.[12]

Although the capital intensity of foreign-owned establishments was not systematically higher or lower than that of U.S.-owned establishments within specific industries,[13] in a large number of industries, as the following tabulation indicates, the capital intensity of foreign-owned establishments differed substantially from that of U.S.-owned establishments. On the one hand, the capital intensity of foreign-owned establishments was more than 10 percent higher than that of U.S.-owned establishments in 98 of the 312 industries. On the other hand, it was more than 10 percent lower in 85 industries.

Capital intensity of foreign-owned establishments relative to that of U.S.-owned establishments	Number of industries
All industries	312
At least 30 percent lower	26
Between 10 and 30 percent lower	59
Within 10 percent lower or higher	129
Between 10 and 30 percent higher	67
At least 30 percent higher	31

Compensation per employee

For total manufacturing, compensation per employee of foreign-owned establishments was $5,300 higher than that of U.S.-owned establishments—$38,300, compared with $33,000. About 60 percent of this difference was attributable to industry-mix effects, and 30 percent to within-industry differences.[14]

Although industry-mix effects dominate, within-industry differences are nonetheless significant. The positive contribution of these differences can be seen from the following tabulation. It shows that compensation per employee of foreign-owned establishments was more than 10 percent higher than that of U.S.-owned establishments in 131 of the 312 industries, whereas it was more than 10 percent lower in only 28 industries.[15]

Compensation per employee of foreign-owned establishments relative to that of U.S.-owned establishments	Number of industries
All industries	312
At least 30 percent lower	3
Between 10 and 30 percent lower	25
Within 10 percent lower or higher	153
Between 10 and 30 percent higher	107
At least 30 percent higher	24

Compensation per employee may have been higher for foreign-owned establishments than for other establishments in the same industry because the occupational mix was weighted more heavily toward relatively high-skilled occupations, perhaps reflecting the use of different technologies.[16] In addition, foreign-owned establishments may have paid higher wage rates at a given skill level than U.S.-owned establishments because, for example, they have a greater tendency to be located in high-wage areas.

11. The data needed to measure capital intensity directly are not available.

12. This statement is based on a decomposition similar to that used for plant scale (see technical note). The decomposition was based on data for the 312 industries. For these industries, the capital intensity measures for both foreign-owned and U.S.-owned establishments were almost the same as the corresponding measures for manufacturing as a whole.

13. Across the 312 industries, the mean difference between the foreign-owned and U.S.-owned capital-intensity measures was negligible.

14. The remaining difference was attributable to the interaction of the within-industry differences and industry-mix effects. The decomposition was based on data for the 312 industries. For these industries, the difference in compensation per employee was $4,600, somewhat smaller than the difference for manufacturing as a whole.

In "FDIUS: Establishment Data for 1987," differences between foreign-owned and U.S.-owned establishments were examined using payroll per employee, which is a somewhat narrower measure than total employee compensation. (Payroll excludes employee benefits, whereas total employee compensation includes them.) Data on total employee compensation were not available from the 1987 link data.

Within-industry differences were somewhat less important in explaining the overall difference in compensation per employee in the 1990 data than in explaining the overall difference in payroll per employee in the 1987 data. This result appears to largely reflect a narrowing of within-industry differences in payroll per employee between 1987 and 1990. In light of the 1990 data, within-industry differences in benefits per employee appear to be larger than within-industry differences in payroll per employee.

15. Across the 312 industries, the mean difference between foreign-owned and U.S.-owned establishments' compensation per employee was $2,500. A statistical test indicated that this difference was significant at the 1-percent confidence level.

16. As noted in footnote 2, BLS has released information on the occupational structure of foreign-owned manufacturing establishments for 1989. Based on this information, BLS concluded that while the distribution of occupations in foreign-owned manufacturing establishments in the United States was little different from that in all U.S. manufacturing establishments at the overall manufacturing level, there were major differences in the distribution of occupations within individual industries, at least at the SIC two-digit level.

Table 10.—Relative Plant Scale and Capital Intensity: Averages for Industries Grouped by the Wage Rates of Foreign-Owned Establishments Relative to Those of U.S.-Owned Establishments, 1990

Range of relative wage rates (percent) [1]	Number of industries	Percent	
		Relative plant scale [2]	Relative capital intensity [3]
All Industries	312	376	102
At least 30 percent lower	2	118	147
Between 10 and 30 percent lower	41	226	95
Within 10 percent lower or higher	156	336	102
Between 10 and 30 percent higher	88	448	104
At least 30 percent higher	25	634	103
Addendum:			
Coefficient of correlation between the measure in the column and the relative wage rate ratio for the 312 industries	.....	.336*	.0348

*Statistically significant at the 1-percent confidence level.

1. Relative wage rates are foreign-owned establishments' wage rates divided by U.S.-owned establishments' wage rates times 100.
2. Relative plant scale is foreign-owned establishments' value added per establishment divided by the corresponding measure for U.S.-owned establishments times 100. This column shows the unweighted averages of the relative scale measure for industries in the groups defined by the relative wage rates shown in the stub.
3. Relative capital intensity is foreign-owned establishments' non-employee-compensation share of value added divided by the corresponding measure for U.S.-owned establishments times 100. This column shows the unweighted averages of the relative capital intensity measure for industries in the groups defined by the relative wage rates shown in the stub.

Production-worker wage rates

In examining differences in employee compensation between foreign-owned and U.S.-owned establishments, differences in occupational mix can be partly controlled for by comparing the wages of production workers only. Restricting the comparison in this way eliminates variations in the ratio of production workers to other workers as a source of differences in rates of pay; in addition, production workers probably constitute a more homogeneous group than other workers, who may represent a wide variety of occupational groups (for example, sales and clerical as well as professional and managerial employees).

For total manufacturing, the average hourly wage rate (excluding benefits) of production workers was $12.57 for foreign-owned establishments and $11.04 for U.S.-owned establishments, a difference of $1.53. About 70 percent of this difference was attributable to industry-

Table 11.—Production Worker Hourly Wage Rates for Foreign-Owned and U.S.-Owned Establishments, Selected Industries in Which Wage Rates of Foreign-Owned Establishments Were Relatively Low or High, 1990

SIC code	Industry	Wages per hour (dollars)		Relative wage rate (percent) [1]	Addendum: Relative plant scale (percent) [2]
		Foreign-owned establishments	U.S.-owned establishments		
	Industries in which foreign-owned establishments had relatively low hourly wage rates:				
3647	Vehicular lighting equipment	10.38	15.85	65	109
3694	Engine electrical equipment	8.30	11.86	70	127
3721	Aircraft	12.07	17.17	70	26
2711	Newspapers	8.93	12.52	71	96
3714	Motor vehicle parts and accessories	11.60	16.14	72	148
3624	Carbon and graphite products	10.53	14.27	74	113
3592	Carburetors, pistons, rings, valves	11.56	14.83	78	170
2431	Millwork	7.96	9.92	80	385
3711	Motor vehicles and car bodies	16.74	20.84	80	161
3661	Telephone and telegraph apparatus	12.07	14.93	81	297
3663	Radio and television communications equipment	9.94	12.10	82	175
2095	Roasted coffee	10.76	13.01	83	162
2631	Paperboard mills	14.03	16.88	83	76
2296	Tire cord and fabrics	8.43	10.12	83	39
3255	Clay refractories	10.70	12.77	84	225
3531	Construction machinery	12.88	15.26	84	219
3951	Pens and mechanical pencils	8.32	9.86	84	222
	Industries in which foreign-owned establishments had relatively high hourly wage rates:				
3532	Mining machinery	13.05	10.39	126	360
2064	Candy and other confectionery products	12.00	9.54	126	357
3251	Brick and structural clay tile	10.40	8.22	127	165
3082	Unsupported plastics profile shapes	11.87	9.36	127	439
2851	Paints and allied products	14.35	11.27	127	416
3398	Metal heat treating	13.73	10.75	128	431
2045	Prepared flour mixes and doughs	13.48	10.55	128	503
2836	Biological products except diagnostic	10.21	7.98	128	1,026
2325	Men's and boys' trousers and slacks	8.27	6.39	130	120
3651	Household audio and video equipment	10.40	7.97	130	1,474
2833	Medicinals and botanicals	21.43	16.41	131	98
3087	Custom compound purchased resins	12.24	9.31	131	187
2085	Distilled and blended liquors	15.89	11.92	133	187
3295	Minerals, ground or treated	13.59	10.16	134	324
3965	Fasteners, buttons, needles, and pins	9.63	7.15	135	831
2816	Inorganic pigments	17.01	12.54	136	703
3291	Abrasive products	14.84	10.70	139	817
3645	Residential lighting fixtures	10.49	7.51	140	606
3596	Scales and balances, except laboratory	11.25	7.87	143	686
3088	Plastics plumbing fixtures	13.10	7.53	174	1,032

1. Hourly wage rate for foreign-owned establishments divided by hourly wage rate for U.S.-owned establishments times 100.
2. Value added per establishment for foreign-owned establishments divided by value added per establishment for U.S.-owned establishments times 100.

NOTE.—The list of industries in this table excludes industries for which the data for foreign-owned establishments are suppressed. It also excludes residual industries, which cover establishments not elsewhere classified.

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mix effects, and 20 percent was attributable to within-industry differences.[17]

Although industry-mix effects dominate, the first two columns of table 10 show that within-industry differences are nonetheless significant. Hourly wages of production workers were more than 10 percent higher in foreign-owned establishments than in U.S.-owned establishments in 113 of the 312 industries, whereas they were at least 10 percent lower in only 43 industries.[18]

Data for selected industries in which the wage rates of foreign-owned establishments differed substantially from those of U.S.-owned establishments are shown in table 11. Five of the industries in which wage rates of foreign-owned establishments were substantially lower than those of U.S.-owned establishments are motor-vehicle related: Vehicular lighting equipment; engine electrical equipment; motor vehicle parts and accessories; carburetors, pistons, rings, and valves; and motor vehicles and car bodies. The lower wage rates in these industries may have resulted because many of the foreign-owned establishments were established recently—within the last decade—and thus have a workforce with less accumulated job tenure than is typical of U.S.-owned establishments. They may also reflect lower rates of unionization among foreign-owned establishments and differences in plant location.

Plant scale.—The within-industry differences in wage rates partly reflect differences in plant scale. Across the 312 industries, the ratio of the wage rates of foreign-owned establishments to those of U.S.-owned establishments is significantly correlated with the ratio of their average plant scales. In table 10, the relative plant-scale ratio for foreign- and U.S.-owned establishments increases steadily as the ratio of their wage rates increases: The average ratio is 118 percent for the 2 industries in which the wage rates are at least 30 percent lower for foreign-owned establishments than for U.S.-owned establishments, and it is 634 percent for the 25 industries in which the wage rates are at least 30 percent higher for foreign-owned establishments. This pattern is consistent with other research that shows that production-worker wages tend to be higher at larger plants.[19]

This pattern is further illustrated in table 11. Average plant scale of foreign-owned establishments was more than three times higher than that of U.S.-owned establishments in 15 of the 20 industries in which wage rates of foreign-owned establishments were substantially higher than those of U.S.-owned establishments. In contrast, it was more than three times that of U.S.-owned establishments in only 1 of the 17 industries in which wage rates of foreign-owned establishments were substantially lower than those of U.S.-owned establishments; in 4 of the 17 industries, average plant scale of foreign-owned establishments was smaller than that of U.S.-owned establishments.

Capital intensity.—Differences between the hourly wage rates of foreign-owned and U.S.-owned establishments were not associated with differences in their capital intensity. In table 10, no discernable relationship between the relative wage and capital-intensity measures is evident. Furthermore, a statistical test indicated that the relative wage and capital-intensity measures were not significantly correlated.

Effect of foreign-ownership.—Differences between the hourly wage rates of foreign-owned and U.S.-owned establishments do not appear to be the result of foreign ownership per se. A regression that controlled for the effects of plant scale and capital intensity on wage rates and that incorporated a variable for foreign ownership indicated that there is no statistically significant relationship between foreign ownership and wage rates.[20]

17. The remaining difference was attributable to the interaction of the within-industry differences and industry-mix effects. The decomposition was based on data for the 312 industries. For these industries, the hourly wage rate for foreign-owned establishments was $1.26 higher than that for U.S.-owned establishments—$12.69, compared with $11.43.

18. Across the 312 industries, the mean difference between foreign-owned and U.S.-owned establishments' hourly wage rates was $0.63. A statistical test indicated that this difference was significant at the 1-percent confidence level.

19. See, for example, Steve J. Davis and John Haltiwanger, "Wage Dispersion Between and Within U.S. Manufacturing Plants, 1963–1986," *Brookings Papers on Economic Activity*, Special Issue (1991): 115–80.

20. A linear regression equation was estimated in which there were 624 observations (consisting of separate observations for foreign-owned and U.S.-owned establishments for each of the 312 industries). This estimation yielded the following:

$$W = 10.42 + \underset{(11.35)}{0.07SC} + \underset{(0.90)}{0.59CI} - \underset{(-0.43)}{0.09FDMY}$$

$$R^2 = 0.21,$$
$$F = 54.7$$

where W is hourly wages, SC is plant scale, CI is capital intensity, and $FDMY$ is a dummy variable for foreign ownership. The t-statistics for the independent variables, which appear in parentheses, indicate that the coefficient of the scale variable was significant at the 1-percent confidence level and that the coefficients of both the capital intensity variable and the foreign-ownership dummy variable were insignificant.

Labor productivity

For total manufacturing, labor productivity (measured as value added per production-worker hour) of foreign-owned establishments was significantly higher than that of U.S.-owned establishments—$74 per hour, compared with $52 per hour.[21] About 70 percent of the difference was attributable to industry-mix effects, and 20 percent to within-industry differences.[22]

Examination of the distribution of industries on the basis of the relative productivity of foreign- and U.S.-owned establishments confirms that, although industry-mix effects dominate, within-industry differences are nonetheless important. In a significant number of industries, the productivity of foreign-owned establishments was higher than that of U.S.-owned establishments: It was more than 10 percent higher in 153 of the 312 industries (table 12). In considerably fewer industries, the productivity of foreign-owned establishments was relatively low: It was at least 10 percent lower in only 70 industries.[23] In 89 industries, foreign-owned establishments' productivity was roughly equal to (within 10 percent of) that of U.S.-owned establishments.

Studies of productivity frequently indicate that plant scale, capital intensity, and employee skill level strongly influence productivity. The following discussion examines the extent to which these conventional factors explain the differences between the productivity of foreign-owned and U.S.-owned establishments.

Plant scale.—Differences between the productivity of foreign-owned and U.S.-owned establishments were highly correlated across industries with differences in plant scale (table 12). This pattern can be seen by comparing the industries in which foreign-owned establishments' productivity was relatively low with the industries in which it was relatively high. In the 18 "lower productivity" industries, the average plant scale of foreign-owned establishments was only about 36 percent larger than that of U.S.-owned establishments. In contrast, in the 92 "higher productivity" industries, the average plant scale of foreign-owned establishments was more than six times that of U.S.-owned establishments.

This pattern is further illustrated in table 13, which shows selected lower and higher productivity industries. In 7 of the 11 lower productivity industries, the average plant scale of foreign-owned establishments was smaller than that of U.S.-owned establishments. In contrast, in all but 2 of the 23 higher productivity industries, the average plant scale of foreign-owned establishments was at least twice as large as that of U.S.-owned establishments.

Capital intensity.—As discussed earlier, even though the capital intensity of foreign-owned establishments was not systematically higher or lower than that of U.S.-owned establishments within individual industries, the differences in the capital intensity of the two groups of establishments were sizable in a large number

21. Productivity can be measured in a variety of ways; the measure used here—value added per production-worker hour—is a commonly used measure of labor productivity and can be easily calculated from the data. Studies of productivity sometimes use total output (shipments plus inventory change) instead of value added in the numerator. However, when total output is used as a measure of production, the inputs to which output is related typically include not only labor employed within the establishment but also capital and the inputs that the establishment purchases from others (for example, materials or business services); data on some of these inputs are not available from the ASM. Furthermore, in attempting to determine whether foreign-owned establishments differ from U.S.-owned establishments, value added may be the preferred measure because it reflects only the production by the establishments themselves, whereas total output reflects, in addition to the establishments' own production, the value of inputs purchased from others.

22. The remaining difference was attributable to the interaction of the industry-mix effects and within-industry differences. The decomposition was performed for the 312 industries. For these industries, value added per production-worker hour was $75 for foreign-owned establishments and $55 for U.S.-owned establishments.

Table 12.—Relative Plant Scale, Capital Intensity, and Employee Skill Level: Averages for Industries Grouped by the Productivity of Foreign-Owned Establishments Relative to That of U.S.-Owned Establishments, 1990

Range of relative productivity (percent) [1]	Number of industries	Percent		
		Relative plant scale [2]	Relative capital intensity [3]	Relative employee skill level [4]
All industries	**312**	**376**	**102**	**109**
At least 30 percent lower	18	136	58	103
Between 10 and 30 percent lower	52	208	85	98
Within 10 percent lower or higher	89	288	96	106
Between 10 and 30 percent higher	61	373	108	111
At least 30 percent higher	92	604	121	118
Addendum:				
Coefficient of correlation between the measure in the column and the relative productivity ratio for the 312 industries	.....	.50*	.64*	.39*

* Statistically significant at the 1-percent confidence level.

1. Relative productivity is foreign-owned establishments' value added per production worker hour divided by the corresponding measure for U.S.-owned establishments times 100.

2. Relative plant scale is foreign-owned establishments' value added per establishment divided by the corresponding measure for U.S.-owned establishments times 100. This column shows the unweighted averages of the relative scale measure for industries in the groups defined by the relative productivity measure shown in the stub.

3. Relative capital intensity is foreign-owned establishments' non-employee-compensation share of value added divided by the corresponding measure for U.S.-owned establishments times 100. This column shows the unweighted averages of the relative capital intensity measure for industries in the groups defined by the relative productivity measure shown in the stub.

4. Relative employee skill level is foreign-owned establishments' compensation per employee divided by the corresponding measure for U.S.-owned establishments times 100. This column shows the unweighted averages of the relative employee skill level measure for industries in the groups defined by the relative productivity measure shown in the stub.

23. Across the 312 industries, the mean difference between the foreign-owned and U.S.-owned productivity measures was $8.19 per hour. A statistical test indicated that this difference was significant at the 1-percent confidence level.

of industries. As table 12 indicates, these differences are highly correlated with differences in productivity. Like the case of plant scale, as the productivity of foreign-owned establishments increases in relation to that of U.S.-owned establishments, the relative capital intensity of foreign-owned establishments also increases. The correlation between capital intensity and productivity reflects the tendency for additional capital to allow increased production when combined with a given amount of labor.

The correlation between differences in productivity and differences in capital intensity of foreign-owned and U.S.-owned establishments is particularly evident when the capital intensities of the two groups of establishments in lower and higher productivity industries are compared. In the lower productivity industries, the average capital intensity of foreign-owned establishments was only 58 percent of that of U.S.-owned establishments. In contrast, in the higher productivity industries, the average capital intensity of foreign-owned establishments exceeded that of U.S.-owned establishments by 21 percent. The data shown in table 13 for selected lower and higher productivity industries further illustrate this pattern. In all of the lower productivity industries, foreign-owned establishments were less capital intensive than U.S.-owned establishments, whereas in all but one of the higher productivity industries, foreign-owned establishments were more capital intensive.

Employee skill level.—Differences in productivity of foreign-owned and U.S.-owned establishments were correlated with differences in the skill level of their employees (measured as compensation per employee); however, the correlation was not as high as the correlation for plant scale and

Table 13.—Productivity, Plant Scale, Capital Intensity, and Employee Skill Level of Foreign-Owned and U.S.-Owned Establishments, Selected Industries in Which the Productivity of Foreign-Owned Establishments Was Relatively Low or High, 1990

SIC code	Industry	Foreign-owned establishments				U.S.-owned establishments				Foreign-owned establishments relative to U.S.-owned establishments (percent)			
		Productivity (dollars) [1]	Plant scale (millions of dollars) [2]	Capital intensity (percent) [3]	Employee skill level (dollars) [4]	Productivity (dollars) [1]	Plant scale (millions of dollars) [2]	Capital intensity (percent) [3]	Employee skill level (dollars) [4]	Productivity	Plant scale	Capital intensity	Employee skill level
	Industries in which foreign-owned establishments had relatively low productivity:												
2296	Tire cord and fabrics	20.1	13.4	28	23,786	66.2	34.3	73	28,535	30	39	38	83
3721	Aircraft	30.8	30.5	12	43,176	76.8	115.6	31	48,834	40	26	41	88
3844	X-ray apparatus and tubes	56.3	15.6	36	45,010	119.8	18.7	67	44,245	47	83	53	102
2911	Petroleum refining	123.8	61.0	67	56,727	248.2	69.5	85	55,053	50	88	79	103
3295	Minerals, ground or treated	37.8	6.6	28	49,584	75.0	2.0	75	26,492	50	324	37	187
2833	Medicinals and botanicals	105.6	10.4	61	48,543	200.4	10.6	81	46,583	53	98	76	104
3724	Aircraft engines and engine parts	43.7	10.9	33	41,474	82.7	27.9	50	47,121	53	39	66	88
3692	Primary batteries, dry and wet	28.8	7.2	31	26,222	51.4	9.8	61	30,728	56	73	52	85
3711	Motor vehicles and car bodies	62.0	151.6	52	47,037	104.3	94.3	66	60,373	59	161	80	78
3643	Current-carrying wiring devices	29.1	10.8	31	30,621	43.7	6.2	53	28,840	67	173	60	106
3524	Lawn and garden equipment	43.8	48.6	65	24,195	63.7	9.7	67	29,451	69	502	96	82
	Industries in which foreign-owned establishments had relatively high productivity:												
3555	Printing trades machinery	92.2	23.8	68	34,815	59.5	3.3	36	41,234	155	722	188	84
2033	Canned fruits and vegetables	82.7	35.5	79	27,591	52.3	9.1	70	26,491	158	389	113	104
3291	Abrasive products	85.0	28.0	58	48,695	53.1	3.4	54	34,351	160	817	107	142
3563	Air and gas compressors	104.0	17.0	55	45,572	62.9	7.3	44	39,642	165	234	125	115
2096	Potato chips and similar snacks	114.0	32.1	76	36,432	66.0	8.0	69	26,683	173	400	110	137
3594	Fluid power pumps and motors	86.9	15.1	56	40,044	49.4	5.6	37	39,663	176	269	149	101
3567	Industrial furnaces and ovens	66.8	4.4	46	39,474	37.0	2.4	30	32,519	180	181	153	121
2035	Pickles, sauces, and salad dressings	163.0	35.7	86	35,742	89.7	7.4	79	28,091	182	483	109	127
2041	Flour and other grain mill products	107.6	17.8	76	42,475	57.5	3.0	62	35,627	187	585	123	119
2834	Pharmaceutical preparations	417.4	153.6	78	54,215	220.7	33.7	80	43,629	189	456	98	124
3873	Watches, clocks, watchcases, and parts	75.5	17.6	69	30,140	38.9	2.8	55	28,879	194	625	125	104
3398	Metal heat treating	74.4	7.8	54	40,478	38.0	1.8	46	33,270	196	431	118	122
2034	Dehydrated fruits, vegetables, soups	84.1	33.5	78	30,788	42.0	6.2	59	27,299	200	542	132	113
2241	Narrow fabric mills	42.0	12.9	68	25,025	20.9	2.3	42	21,377	201	562	161	117
2836	Biological products except diagnostic	129.2	23.3	66	37,209	64.3	2.3	55	36,677	201	1,026	120	101
2032	Canned specialties	161.2	30.5	86	31,089	80.1	15.7	77	30,766	201	194	112	101
2045	Prepared flour mixes and doughs	144.0	37.0	84	36,583	68.5	7.4	68	31,615	210	503	123	116
2731	Book publishing	689.4	34.4	80	36,563	291.4	3.8	73	37,424	237	912	110	98
3088	Plastics plumbing fixtures	88.6	22.8	73	35,482	35.1	2.2	52	23,809	252	1,032	140	149
3821	Laboratory apparatus and furniture	134.0	25.6	55	45,506	52.8	3.7	43	34,375	254	692	128	132
3743	Railroad equipment	112.6	25.1	62	37,331	41.4	9.2	34	39,208	272	274	182	95
2816	Inorganic pigments	257.2	54.8	84	49,606	93.9	7.8	71	39,586	274	703	119	125
2411	Logging	87.1	8.0	80	33,712	31.5	.3	51	24,895	276	2,352	156	135

1. Value added per production worker hour.
2. Value added per establishment.
3. Non-employee-compensation share of value added.
4. Compensation per employee.

NOTE.—The industries with relatively low productivity for foreign-owned establishments shown in this table are the industries in which the productivity of foreign-owned establishments was at least 30 percent lower than that of U.S.-owned establishments and that (1) had at least six foreign-owned establishments, (2) were not suppressed for foreign-owned establishments, and (3) were not residual industries (see "Technical Note" in the article). The industries with relatively high productivity for foreign-owned establishments shown in this table are the industries in which the productivity of foreign-owned establishments was a least 50 percent higher than that of U.S.-owned establishments and that (1) had at least six foreign-owned establishments, (2) were not suppressed for foreign-owned establishments, and (3) were not residual industries (see "Technical Note").
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for capital intensity.[24] In the lower productivity industries, the employee skill level of foreign-owned and U.S.-owned establishments was about the same, whereas in the higher productivity industries, the employee skill level of foreign-owned establishments was 18 percent higher than that of U.S.-owned establishments. Table 13 further illustrates the relationship between productivity and employee skill level. In 10 of the 11 lower productivity industries, the employee skill level of foreign-owned establishments was roughly equal to, or lower than, that of U.S.-owned establishments. In contrast, in 15 of the 23 higher productivity industries, the employee skill level of foreign-owned establishments was substantially higher than that of U.S.-owned establishments.

Combined effects.—The prior discussion showed that, when taken separately, differences in the plant scale, capital intensity, and employee skill level of foreign-owned and U.S.-owned establishments are each associated with differences in productivity. To determine whether a particular factor still independently contributes to the differences in productivity once the influence of each of the other factors is taken into account, the measures of relative plant scale, capital intensity, and employee skill level were included as independent variables in a multiple regression equation in which the relative productivity measure was the dependent variable. In addition to testing for the independent contribution of each of the three factors, the regression also provides an indication of their combined importance. The results confirmed that, even after allowing for the influence of the other measures, the relative plant scale, capital intensity, and employee skill level measures were each significantly correlated with the differences in productivity.[25] Furthermore, over 60 percent of the variation in the relative productivity measure could be accounted for by the combined variation in these three factors.

Effect of foreign ownership.—One additional statistical check was made to test directly whether foreign ownership per se was associated with higher productivity levels. This check involved estimating a multiple regression equation that controlled for the effects on productivity levels of plant scale, capital intensity, and employee skill level and that included a variable for foreign ownership. The test indicated that there was no correlation between productivity and foreign ownership per se.[26] Thus, any influence of foreign ownership on productivity appears to be mainly indirect: The plant scale, capital intensity, and employee skill level of foreign-owned establishments differ from those of U.S.-owned establishments, and it is largely because of these differences that the productivity for foreign-owned establishments is higher.

Technical Note

This note describes the statistical decomposition method used in the article and discusses how the findings of the article are affected by the estimation of data for foreign-owned establishments and by the inclusion in the SIC of residual industries, which cover establishments not elsewhere classified.

Statistical decomposition

The differences between foreign-owned and U.S.-owned establishments in average plant scale, capital intensity, compensation per employee, wages per production-worker hour, and productivity were decomposed statistically into industry-mix,

24. The compensation-per-employee measure of employee skill level (sometimes termed "human capital intensity") reflects both occupational structure and the accumulation of skills within occupations.

25. Using the 312 industries as the observations, the estimation yielded the following:

$$RPR = -.89 + .02RSC + .01RCI + .01RES$$
$$\qquad\qquad (4.90) \quad (15.67) \quad (9.10)$$
$$R^2 = .61,$$
$$F = 163.7$$

where RPR, RSC, RCI, and RES are the measures of relative productivity, plant scale, capital intensity, and employee skill level, respectively. The t-statistics for the independent variables, which appear in parentheses, indicate that the coefficients for all of the variables were statistically significant at the 1-percent confidence level. The coefficients of correlation between the independent variables were as follows: Plant scale and capital intensity, 0.32; plant scale and employee skill level, 0.33; capital intensity and employee skill level, 0.04.

26. A linear regression was estimated in which there were 624 observations (there were separate observations for foreign-owned and U.S.-owned establishments for each of the 312 industries). This estimation yielded the following:

$$PR = -133.81 + .19SC + 219.10CI + .0024ES - .15FDMY$$
$$\qquad\qquad (1.83) \quad (19.95) \quad (10.99) \quad (-.04)$$
$$R^2 = .54,$$
$$F = 188.41$$

where PR, SC, CI, and ES are the measures of productivity, plant scale, capital intensity, and employee skill level, respectively, and $FDMY$ is a dummy variable for foreign ownership. The t-statistics for the independent variables, which are shown in parentheses, indicate that the coefficients of both the capital intensity and employee skill level variables were significant at the 1-percent confidence level, that the coefficient of the scale variable was significant at the 10-percent confidence level, and that the coefficient of the foreign-ownership dummy was insignificant. To rule out the possibility that the regression results were influenced by errors in the measurement of capital intensity through the use of a proxy variable, tests controlling for this potential errors-in-variables problem using "instrumental variables" were conducted; the results of the tests suggested that such errors probably were not a problem.

within-industry, and interaction effects. The decomposition for a given measure begins with expressing the measure as a weighted average of values for individual industries. For plant scale, for example, average plant scale (value added per establishment) may be expressed as a weighted average of the average plant scales in individual industries, with the weight for any given industry being the industry's share in the total number of establishments. Thus, the average plant scale for U.S.-owned establishments can be expressed as

$$p = \sum_{i=1}^{312} s_i p_i,$$

and the average plant scale of foreign-owned establishments can be expressed as

$$p^a = \sum_{i=1}^{312} s_i^a p_i^a,$$

where p is average plant scale (value added per establishment) for the 312 industries (see footnote 9), p_i is plant scale for industry i, and s_i is the share of the ith industry in the total number of establishments for the 312 industries. (Variables with the superscript a denote data for foreign-owned establishments, and variables without a superscript denote data for U.S.-owned establishments.) The difference between average plant scales of the two groups of establishments can then be decomposed algebraically as

$$p^a - p = \sum_{i=1}^{312} p_i(s_i^a - s_i) + \sum_{i=1}^{312} s_i(p_i^a - p_i) + \sum_{i=1}^{312} (p_i^a - p_i)(s_i^a - s_i).$$

The first term on the right side of the equation measures the effects of differences in industry mix; it is the difference in plant scale that would have resulted if, in each industry, plant scale were the same for foreign-owned establishments as for U.S.-owned establishments but if the differences in the distribution of the establishments by industry were as observed. The second term on the right side measures the effects of within-industry differences in plant scale; it is the difference in plant scale that would have resulted if foreign-owned establishments had the same distribution by industry as U.S.-owned establishments but if the differences in plant scale that existed in each industry were as observed. The third term reflects the interaction between these two effects.

A decomposition similar to this one was carried out for each of the other measures discussed in the article.

Estimation of nonsample establishments

Data were estimated for foreign-owned establishments that were not selected for the 1990 ASM, which covered only a sample of all manufacturing establishments. For manufacturing as a whole, 17 percent of the shipments of foreign-owned establishments was estimated in 1990. Data for the nonsample foreign-owned establishments were estimated using industry-average relationships between employment and payroll, on the one hand, and the other items covered by the ASM, on the other. (Employment and payroll for all foreign-owned establishments were obtained from the Census Bureau's Standard Statistical Establishment List.) Because industry-average relationships were used as the basis for estimation, actual differences between foreign-owned and U.S.-owned establishments may not be the same as those observed in the data; in particular, both the total and the within-industry differences may be larger. To check this possibility, the productivity of foreign-owned and U.S.-owned establishments was compared using data only for those foreign-owned establishments that were reported in the ASM. This comparison indicated that both the total productivity difference and the within-industry difference are larger when only these data are used than when both the reported and estimated data are used. However, the significance of this result is difficult to assess because the foreign-owned establishments included in the ASM sample were much larger, on average, than the nonsample establishments, and, as discussed in the previous section, productivity tends to be higher in larger establishments.

Residual industries

The SIC includes some three- and four-digit industries that cover establishments not elsewhere classified. (An SIC code with the digit "9" appearing as the third or fourth digit usually designates such an industry.) These residual industries usually do not consist of homogeneous activity groups. For example, SIC 3699 ("Electrical machinery, equipment, and supplies, not elsewhere classified") includes, among other things, establishments that manufacture electric Christmas tree lights and establishments that manufacture particle accelerators. Because of this heterogeneity, the activities of foreign-owned and

U.S.-owned establishments that are classified in such industries may differ significantly. These differences could, in turn, cause the within-industry differences that were observed in the data to be larger than if comparisons had been based only on industries in which activities were more homogeneous. To determine whether this was the case, the residual industries were excluded from the data, and the comparisons of the hourly wage rate and the productivity of foreign-owned and U.S.-owned establishments were repeated. Two different checks were made: In the first, only the 15 three-digit residual industries were excluded; in the second, both the three- and four-digit residual industries (a total of 53 industries) were excluded. In both the hourly wage rate and the productivity comparisons, excluding the residual industries had little effect on the results. Specifically, both the overall differences between foreign-owned and U.S.-owned establishments and the relative importance of the industry-mix effects and within-industry differences were nearly the same as those reported in the article. In addition, the distributions of foreign-owned and U.S.-owned establishments in terms of relative hourly wage rates and productivity were little changed from those discussed in the article.

Table 14 follows. 

Table 14.—Employment, Value Added by Manufacture, and Value of Shipments of Foreign-Owned and All U.S. Establishments, by Detailed Industry, 1990

SIC code	Industry	Foreign-owned establishments			All U.S. establishments			Foreign-owned establishments as a percentage of all U.S. establishments		
		Number of employees	Thousands of dollars		Number of employees [1]	Thousands of dollars		Employment	Value added by manufacture	Value of shipments
			Value added by manufacture	Value of shipments		Value added by manufacture [1]	Value of shipments [2]			
	Manufacturing [3]	**2,004,235**	**177,360,745**	**417,539,353**	**18,840,300**	**1,326,361,700**	**2,873,501,600**	**10.6**	**13.4**	**14.5**
20	Food and kindred products	159,386	19,501,177	46,842,783	1,469,900	140,972,800	384,009,000	10.8	13.8	12.2
21	Tobacco products	H	(D)	(D)	40,900	22,561,300	29,922,400	(D)	(D)	(D)
22	Textile mill products	47,363	2,283,123	5,693,627	632,500	26,541,600	65,951,400	7.5	8.6	8.6
23	Apparel and other textile products	23,085	850,240	1,727,481	992,900	33,034,000	64,413,600	2.3	2.6	2.7
24	Lumber and wood products	17,043	842,486	2,304,003	682,900	28,597,200	74,287,200	2.5	2.9	3.1
25	Furniture and fixtures	J	(D)	(D)	499,200	21,644,700	41,682,000	(D)	(D)	(D)
26	Paper and allied products	48,644	4,709,223	11,395,189	628,100	59,823,300	131,444,600	7.7	7.9	8.7
27	Printing and publishing	103,983	10,408,807	16,499,934	1,538,100	103,179,000	157,059,500	6.8	10.1	10.5
28	Chemicals and allied products	242,392	48,835,701	87,678,890	853,300	153,032,400	288,183,700	28.4	31.9	30.4
29	Petroleum and coal products	25,638	4,106,797	46,372,551	111,900	27,214,100	172,588,600	22.9	15.1	26.9
30	Rubber and miscellaneous plastics products	120,951	8,757,926	17,790,551	870,100	49,889,000	101,398,200	13.9	17.6	17.5
31	Leather and leather products	6,362	287,251	608,138	117,400	4,586,600	9,887,300	5.4	6.3	6.2
32	Stone, clay, and glass products	105,578	8,450,211	16,407,454	509,100	34,140,200	63,468,000	20.7	24.8	25.9
33	Primary metal industries	119,087	10,297,630	31,902,909	711,900	53,366,600	146,052,000	16.7	19.3	21.8
34	Fabricated metal products	93,300	6,350,246	13,973,579	1,438,700	79,951,900	163,052,800	6.5	7.9	8.6
35	Industrial machinery and equipment	191,440	13,561,697	31,010,583	1,876,700	132,165,800	256,344,700	10.2	10.3	12.1
36	Electronic and other electric equipment	228,237	16,703,246	34,601,773	1,497,400	106,983,900	194,847,900	15.2	15.6	17.8
37	Transportation equipment	104,147	7,170,588	28,834,909	1,773,700	146,916,300	367,926,700	5.9	4.9	7.8
38	Instruments and related products	121,520	9,722,110	15,840,686	948,600	81,665,600	123,776,700	12.8	11.9	12.8
39	Miscellaneous manufacturing industries	26,087	1,929,276	3,553,235	386,300	20,095,600	37,205,200	6.8	9.6	9.6
	Administrative and auxiliary	200,064	n.a.	n.a.	1,260,900	n.a.	n.a.	15.9	n.a.	n.a.
20	**Food and kindred products**	**159,386**	**19,501,177**	**46,842,783**	**1,469,900**	**140,972,800**	**384,009,000**	**10.8**	**13.8**	**12.2**
201	Meat products	16,050	642,258	2,911,450	376,900	18,434,500	90,776,500	4.3	3.5	3.2
2011	Meat packing plants	3,864	172,550	1,124,837	118,400	6,666,500	51,069,200	3.3	2.6	2.2
2013	Sausages and other prepared meats	2,968	199,018	845,454	81,700	5,315,700	18,779,700	3.6	3.7	4.5
2015	Poultry slaughtering and processing	9,218	270,690	941,159	176,800	6,452,300	20,927,600	5.2	4.2	4.5
202	Dairy products	18,410	2,121,659	6,845,546	139,000	13,233,700	50,962,400	13.2	16.0	13.4
2021	Creamery butter	B	(D)	(D)	1,600	207,500	1,307,500	(D)	(D)	(D)
2022	Cheese, natural and processed	4,804	390,614	1,886,501	34,900	2,850,600	16,155,800	13.8	13.7	11.7
2023	Dry, condensed, evaporated products	1,420	468,861	908,179	12,100	2,670,200	6,135,300	11.7	17.6	14.8
2024	Ice cream and frozen desserts	H	(D)	(D)	20,700	1,725,500	4,660,200	(D)	(D)	(D)
2026	Fluid milk	8,724	823,911	3,183,337	69,600	5,779,900	22,703,600	12.5	14.3	14.0
203	Preserved fruits and vegetables	27,181	3,362,382	6,918,243	218,200	20,418,900	44,494,500	12.5	16.5	15.5
2032	Canned specialties	931	213,440	389,181	23,900	3,272,300	6,322,300	3.9	6.5	6.2
2033	Canned fruits and vegetables	9,641	1,278,306	2,935,885	68,000	6,405,200	14,697,900	14.2	20.1	20.1
2034	Dehydrated fruits, vegetables, soups	2,345	334,656	591,218	14,100	1,124,900	2,453,700	16.6	29.8	24.1
2035	Pickles, sauces, and salad dressings	1,525	392,483	621,680	21,200	2,984,500	5,749,800	7.2	13.2	10.8
2037	Frozen fruits and vegetables	5,768	353,619	1,037,316	46,200	2,921,600	7,473,600	12.5	12.1	13.9
2038	Frozen specialties, nec	6,971	789,878	1,342,963	44,700	3,710,400	7,797,000	15.6	21.3	17.2
204	Grain mill products	15,180	2,877,809	6,796,558	102,700	19,294,700	46,538,000	14.8	14.9	14.6
2041	Flour and other grain mill products	1,312	231,559	726,735	12,300	1,251,300	5,624,700	10.7	18.5	12.9
2043	Cereal breakfast foods	0	0	0	16,100	6,325,300	8,704,600	0	0	0
2044	Rice milling	C	(D)	(D)	4,300	592,500	1,771,700	(D)	(D)	(D)
2045	Prepared flour mixes and doughs	2,499	554,763	937,758	12,000	1,496,700	3,155,500	20.8	37.1	29.7
2046	Wet corn milling	H	(D)	(D)	9,300	2,867,700	6,696,400	(D)	(D)	(D)
2047	Dog and cat food	G	(D)	(D)	12,900	3,842,200	7,015,000	(D)	(D)	(D)
2048	Prepared feeds, nec	5,123	475,527	2,159,666	35,800	2,919,000	13,570,200	14.3	16.3	15.9
205	Bakery products	26,951	2,769,836	4,310,139	207,900	15,971,100	26,121,300	13.0	17.3	16.5
2051	Bread, cake, and related products	14,359	1,074,725	1,683,037	149,000	10,475,500	17,019,200	9.6	10.3	9.9
2052	Cookies and crackers	12,276	1,676,510	2,592,481	48,700	4,823,100	7,803,500	25.2	34.8	33.2
2053	Frozen bakery products, except bread	316	18,601	34,621	10,200	672,400	1,298,600	3.1	2.8	2.7
206	Sugar and confectionery products	14,715	1,527,756	3,862,402	92,300	9,474,600	21,044,500	15.9	16.1	18.4
2061	Raw cane sugar	F	(D)	(D)	6,100	502,000	1,295,600	(D)	(D)	(D)
2062	Cane sugar refining	G	(D)	(D)	4,900	659,700	3,075,300	(D)	(D)	(D)
2063	Beet sugar	G	(D)	(D)	7,600	828,800	2,133,900	(D)	(D)	(D)
2064	Candy and other confectionery products	7,746	621,196	1,231,407	49,200	4,354,900	7,991,800	15.7	14.3	15.4
2066	Chocolate and cocoa products	G	(D)	(D)	11,300	1,418,100	3,061,300	(D)	(D)	(D)
2067	Chewing gum	F	(D)	(D)	4,400	725,200	1,113,700	(D)	(D)	(D)
2068	Salted and roasted nuts and seeds	C	(D)	(D)	8,900	985,900	2,373,000	(D)	(D)	(D)
207	Fats and oils	6,163	973,226	4,445,591	29,300	4,118,200	19,499,200	21.0	23.6	22.8
2074	Cottonseed oil mills	E	(D)	(D)	2,800	185,000	850,500	(D)	(D)	(D)
2075	Soybean oil mills	G	(D)	(D)	6,900	1,519,000	10,966,300	(D)	(D)	(D)
2076	Vegetable oil mills, nec	184	27,225	179,793	700	98,600	490,400	26.3	27.6	36.7
2077	Animal and marine fats and oils	C	(D)	(D)	8,600	715,400	1,776,200	(D)	(D)	(D)
2079	Edible fats and oils, nec	3,706	565,481	1,739,181	10,300	1,600,300	5,415,800	36.0	35.3	32.1
208	Beverages	14,504	2,561,436	5,052,651	146,200	25,033,900	52,198,000	9.9	10.2	9.7
2082	Malt beverages	G	(D)	(D)	32,600	8,192,800	15,186,200	(D)	(D)	(D)
2083	Malt	E	(D)	(D)	1,400	170,800	700,400	(D)	(D)	(D)
2084	Wines, brandy, and brandy spirits	2,496	397,667	722,462	14,400	1,810,100	3,657,800	17.3	22.0	19.8
2085	Distilled and blended liquors	3,357	924,787	1,625,637	7,400	1,888,300	3,473,500	45.4	49.0	46.8
2086	Bottled and canned soft drinks	5,151	511,608	1,345,438	82,400	9,075,100	23,847,500	6.3	5.6	5.6
2087	Flavoring extracts and syrups, nec	764	263,015	371,437	8,100	3,896,900	5,332,500	9.4	6.7	7.0
209	Miscellaneous food and kindred products	20,232	2,664,815	5,700,203	157,300	14,993,300	32,374,500	12.9	17.8	17.6
2091	Canned and cured fish and seafoods	1,192	63,249	267,432	7,100	303,200	998,200	16.8	20.9	26.8
2092	Fresh or frozen prepared fish	6,764	353,240	1,443,721	40,500	1,776,900	6,087,700	16.7	19.9	23.7
2095	Roasted coffee	2,322	592,348	1,200,431	11,200	3,581,800	6,622,700	20.7	16.5	18.1
2096	Potato chips and similar snacks	2,139	320,787	518,688	32,300	2,906,300	6,062,100	6.6	11.0	8.6
2097	Manufactured ice	B	(D)	(D)	4,400	238,000	326,700	(D)	(D)	(D)
2098	Macaroni and spaghetti	C	(D)	(D)	6,200	728,700	1,229,600	(D)	(D)	(D)
2099	Food preparations, nec	7,574	1,307,414	2,219,343	55,700	5,458,300	11,047,600	13.6	24.0	20.1
21	**Tobacco products**	**H**	(D)	(D)	**40,900**	22,561,300	**29,922,400**	(D)	(D)	(D)
211	Cigarettes	G	(D)	(D)	27,800	20,628,300	25,522,400	(D)	(D)	(D)
2111	Cigarettes	G	(D)	(D)	27,800	20,628,300	25,522,400	(D)	(D)	(D)
212	Cigars	0	0	0	2,300	137,000	229,800	0	0	0
2121	Cigars	0	0	0	2,300	137,000	229,800	0	0	0
213	Chewing and smoking tobacco	C	(D)	(D)	3,200	1,105,900	1,473,800	(D)	(D)	(D)
2131	Chewing and smoking tobacco	C	(D)	(D)	3,200	1,105,900	1,473,800	(D)	(D)	(D)
214	Tobacco stemming and redrying	F	(D)	(D)	7,600	690,000	2,696,500	(D)	(D)	(D)
2141	Tobacco stemming and redrying	F	(D)	(D)	7,600	690,000	2,696,500	(D)	(D)	(D)
22	**Textile mill products**	**47,363**	**2,283,123**	**5,693,627**	**632,500**	**26,541,600**	**65,951,400**	**7.5**	**8.6**	**8.6**
221	Broadwoven fabric mills, cotton	G	(D)	(D)	62,500	2,457,000	5,324,500	(D)	(D)	(D)
2211	Broadwoven fabric mills, cotton	G	(D)	(D)	62,500	2,457,000	5,324,500	(D)	(D)	(D)
222	Broadwoven fabric mills, manmade fiber and silk	10,405	538,937	1,076,324	85,300	3,619,300	8,577,900	12.2	14.9	12.5

See footnotes at end of table.

Table 14.—Employment, Value Added by Manufacture, and Value of Shipments of Foreign-Owned and All U.S. Establishments, by Detailed Industry, 1990—Continued

SIC code	Industry	Foreign-owned establishments			All U.S. establishments			Foreign-owned establishments as a percentage of all U.S. establishments		
		Number of employees	Thousands of dollars		Number of employees [1]	Thousands of dollars		Employment	Value added by manufacture	Value of shipments
			Value added by manufacture	Value of shipments		Value added by manufacture [1]	Value of shipments [2]			
2221	Broadwoven fabric mills, manmade fiber and silk	10,405	538,937	1,076,324	85,300	3,619,300	8,577,900	12.2	14.9	12.5
223	Broadwoven fabric mills, wool	357	23,336	41,728	15,700	674,600	1,798,300	2.3	3.5	2.3
2231	Broadwoven fabric mills, wool	357	23,336	41,728	15,700	674,600	1,798,300	2.3	3.5	2.3
224	Narrow fabric mills	983	77,334	107,476	17,000	671,400	1,259,700	5.8	11.5	8.5
2241	Narrow fabric mills	983	77,334	107,476	17,000	671,400	1,259,700	5.8	11.5	8.5
225	Knitting mills	8,331	290,206	701,556	197,900	6,791,100	14,596,500	4.2	4.3	4.8
2251	Women's hosiery, except socks	E	(D)	(D)	23,400	911,200	1,620,700	(D)	(D)	(D)
2252	Hosiery, nec	G	(D)	(D)	38,600	1,062,000	2,277,900	(D)	(D)	(D)
2253	Knit outerwear mills	1,378	35,918	67,356	63,600	1,783,200	3,456,400	2.2	2.0	1.9
2254	Knit underwear mills	G	(D)	(D)	15,400	596,500	1,105,000	(D)	(D)	(D)
2257	Weft knit fabric mills	842	32,153	102,668	30,700	1,370,000	3,588,700	2.7	2.3	2.9
2258	Lace and warp knit fabric mills	G	(D)	(D)	22,300	931,600	2,298,300	(D)	(D)	(D)
2259	Knitting mills, nec	0	0	0	3,900	136,500	249,300	0	0	0
226	Textile finishing, except wool	H	(D)	(D)	49,400	2,365,700	6,303,800	(D)	(D)	(D)
2261	Finishing plants, cotton	1,341	59,665	113,369	14,900	812,300	1,594,800	9.0	7.3	7.1
2262	Finishing plants, manmade	E	(D)	(D)	22,300	1,109,700	3,400,900	(D)	(D)	(D)
2269	Finishing plants, nec	1,489	74,144	189,153	12,200	443,600	1,308,100	12.2	16.7	14.5
227	Carpets and rugs	3,310	179,830	661,636	51,800	2,917,300	10,038,400	6.4	6.2	6.6
2273	Carpets and rugs	3,310	179,830	661,636	51,800	2,917,300	10,038,400	6.4	6.2	6.6
228	Yarn and thread mills	10,800	394,793	996,732	100,700	3,753,100	10,574,600	10.7	10.5	9.4
2281	Yarn spinning mills	6,693	246,816	619,148	75,000	2,654,500	7,259,200	8.9	9.3	8.5
2282	Throwing and winding mills	F	(D)	(D)	18,500	769,300	2,521,000	(D)	(D)	(D)
2284	Thread mills	H	(D)	(D)	7,100	329,300	794,500	(D)	(D)	(D)
229	Miscellaneous textile goods	7,828	520,049	1,524,095	52,200	3,292,000	7,477,800	15.0	15.8	20.4
2295	Coated fabrics, not rubberized	E	(D)	(D)	8,900	578,600	1,361,800	(D)	(D)	(D)
2296	Tire cord and fabrics	2,849	94,050	443,174	5,100	334,300	981,600	55.9	28.1	45.1
2297	Nonwoven fabrics	2,329	214,792	669,364	16,900	1,306,900	2,851,000	13.8	16.4	23.5
2298	Cordage and twine	G	(D)	(D)	7,000	248,800	636,900	(D)	(D)	(D)
2299	Textile goods, nec	1,199	118,688	203,167	14,400	823,400	1,646,500	8.3	14.4	12.3
23	**Apparel and other textile products**	**23,085**	**850,240**	**1,727,481**	**992,900**	**33,034,000**	**64,413,600**	2.3	2.6	2.7
231	Men's and boys' suits and coats	4,262	148,603	234,577	48,400	1,500,800	2,622,400	8.8	9.9	8.9
2311	Men's and boys' suits and coats	4,262	148,603	234,577	48,400	1,500,800	2,622,400	8.8	9.9	8.9
232	Men's and boys' furnishings	7,982	264,990	548,727	258,800	8,051,400	14,872,900	3.1	3.3	3.7
2321	Men's and boys' shirts	H	(D)	(D)	69,700	2,197,700	4,242,600	(D)	(D)	(D)
2322	Men's and boys' underwear and nightwear	G	(D)	(D)	15,300	381,700	724,900	(D)	(D)	(D)
2323	Men's and boys' neckwear	B	(D)	(D)	7,400	268,500	499,900	(D)	(D)	(D)
2325	Men's and boys' trousers and slacks	1,813	67,229	163,467	81,700	3,016,700	5,657,300	2.2	2.2	2.9
2326	Men's and boys' work clothing	C	(D)	(D)	31,500	846,300	1,461,700	(D)	(D)	(D)
2329	Men's and boys' clothing, nec	F	(D)	(D)	53,300	1,340,600	2,286,600	(D)	(D)	(D)
233	Women's and misses' outerwear	1,950	60,636	111,089	318,200	10,192,400	19,338,700	.6	.6	.6
2331	Women's and misses' blouses and shirts	C	(D)	(D)	64,400	1,954,900	3,733,000	(D)	(D)	(D)
2335	Women's, junior's, and misses' dresses	F	(D)	(D)	106,400	3,346,800	5,914,500	(D)	(D)	(D)
2337	Women's and misses' suits and coats	1,004	36,450	77,062	45,900	1,979,000	4,162,800	2.2	1.8	1.9
2339	Women's and misses' outerwear, nec	C	(D)	(D)	101,500	2,911,700	5,528,400	(D)	(D)	(D)
234	Women's and children's undergarments	G	(D)	(D)	60,300	1,859,000	3,424,300	(D)	(D)	(D)
2341	Women's and children's underwear	G	(D)	(D)	48,700	1,298,400	2,337,400	(D)	(D)	(D)
2342	Bras, girdles, and allied garments	E	(D)	(D)	11,600	560,600	1,086,900	(D)	(D)	(D)
235	Hats, caps, and millinery	0	0	0	16,500	424,300	736,600	0	0	0
2353	Hats, caps, and millinery	0	0	0	16,500	424,300	736,600	0	0	0
236	Girls' and children's outerwear	F	(D)	(D)	60,800	2,045,700	3,697,800	(D)	(D)	(D)
2361	Girls' and children's dresses and blouses	E	(D)	(D)	29,000	903,800	1,724,500	(D)	(D)	(D)
2369	Girls' and children's outerwear, nec	C	(D)	(D)	31,900	1,141,900	1,973,200	(D)	(D)	(D)
237	Fur goods	0	0	0	2,200	103,600	378,700	0	0	0
2371	Fur goods	0	0	0	2,200	103,600	378,700	0	0	0
238	Miscellaneous apparel and accessories	C	(D)	(D)	38,300	1,237,900	2,256,400	(D)	(D)	(D)
2381	Fabric dress and work gloves	C	(D)	(D)	5,200	212,400	340,800	(D)	(D)	(D)
2384	Robes and dressing gowns	0	0	0	3,900	119,700	306,300	0	0	0
2385	Waterproof outerwear	0	0	0	4,500	113,000	219,300	0	0	0
2386	Leather and sheep-lined clothing	0	0	0	2,200	73,000	166,600	0	0	0
2387	Apparel belts	0	0	0	11,100	386,100	673,400	0	0	0
2389	Apparel and accessories, nec	0	0	0	11,500	333,800	550,100	0	0	0
239	Miscellaneous fabricated textile products	6,515	273,047	620,649	189,300	7,618,800	17,085,900	3.4	3.6	3.6
2391	Curtains and draperies	F	(D)	(D)	23,400	685,400	1,499,200	(D)	(D)	(D)
2392	Housefurnishings, nec	2,638	86,198	214,278	44,800	1,967,300	4,871,900	5.9	4.4	4.4
2393	Textile bags	360	12,369	29,131	5,700	230,000	513,000	6.3	5.4	5.7
2394	Canvas and related products	C	(D)	(D)	17,300	531,100	1,134,900	(D)	(D)	(D)
2395	Pleating and stitching	0	0	0	14,200	388,100	742,700	0	0	0
2396	Automotive and apparel trimmings	F	(D)	(D)	47,100	2,267,400	5,104,800	(D)	(D)	(D)
2397	Schiffli machine embroideries	C	(D)	(D)	5,900	172,900	309,200	(D)	(D)	(D)
2399	Fabricated textile products, nec	1,586	110,416	206,322	31,100	1,376,600	2,910,300	5.1	8.0	7.1
24	**Lumber and wood products**	**17,043**	**842,486**	**2,304,003**	682,900	**28,597,200**	**74,287,200**	2.5	2.9	3.1
241	Logging	721	119,353	382,586	83,400	4,313,200	12,229,000	.9	2.8	3.1
2411	Logging	721	119,353	382,586	83,400	4,313,200	12,229,000	.9	2.8	3.1
242	Sawmills and planing mills	2,706	143,504	431,743	170,800	7,174,500	19,934,900	1.6	2.0	2.2
2421	Sawmills and planing mills, general	2,071	122,196	378,485	138,900	6,184,300	17,923,000	1.5	2.0	2.1
2426	Hardwood dimension and flooring mills	F	(D)	(D)	29,300	908,800	1,800,500	(D)	(D)	(D)
2429	Special product sawmills, nec	B	(D)	(D)	2,500	81,500	211,300	(D)	(D)	(D)
243	Millwork, plywood and structural members	7,930	339,789	777,564	229,400	9,577,600	23,245,200	3.5	3.5	3.3
2431	Millwork	3,909	168,644	375,646	90,500	3,851,600	9,524,700	4.3	4.4	3.9
2434	Wood kitchen cabinets	G	(D)	(D)	62,800	2,540,100	4,610,000	(D)	(D)	(D)
2435	Hardwood veneer and plywood	1,328	59,420	135,003	18,700	706,600	2,051,700	7.1	8.4	6.6
2436	Softwood veneer and plywood	C	(D)	(D)	35,600	1,669,200	5,030,400	(D)	(D)	(D)
2439	Structural wood members, nec	F	(D)	(D)	21,800	810,100	2,028,400	(D)	(D)	(D)
244	Wood containers	C	(D)	(D)	41,500	1,189,200	2,850,000	(D)	(D)	(D)
2441	Nailed wood boxes and shook	0	0	0	6,000	191,600	431,300	0	0	0
2448	Wood pallets and skids	C	(D)	(D)	28,300	802,000	1,948,600	(D)	(D)	(D)
2449	Wood containers, nec	0	0	0	7,200	195,600	470,200	0	0	0
245	Wood buildings and mobile homes	G	(D)	(D)	61,400	2,364,800	6,471,000	(D)	(D)	(D)
2451	Mobile homes	B	(D)	(D)	38,800	1,501,600	4,202,500	(D)	(D)	(D)
2452	Prefabricated wood buildings	1,359	48,762	116,306	22,600	863,200	2,268,500	6.0	5.6	5.1
249	Miscellaneous wood products	4,118	178,693	570,338	96,400	3,977,800	9,557,000	4.3	4.5	6.0
2491	Wood preserving	F	(D)	(D)	13,000	696,500	2,642,700	(D)	(D)	(D)
2493	Reconstituted wood products	1,598	95,998	247,272	22,300	1,285,000	3,042,600	7.2	7.5	8.1
2499	Wood products, nec	G	(D)	(D)	61,100	1,996,300	3,871,800	(D)	(D)	(D)
25	**Furniture and fixtures**	J	(D)	(D)	**499,200**	**21,644,700**	**41,682,000**	(D)	(D)	(D)

See footnotes at end of table.

Table 14.—Employment, Value Added by Manufacture, and Value of Shipments of Foreign-Owned and All U.S. Establishments, by Detailed Industry, 1990—Continued

SIC code	Industry	Foreign-owned establishments			All U.S. establishments			Foreign-owned establishments as a percentage of all U.S. establishments		
		Number of employees	Thousands of dollars		Number of employees [1]	Thousands of dollars		Employment	Value added by manufacture	Value of shipments
			Value added by manufacture	Value of shipments		Value added by manufacture [1]	Value of shipments [2]			
251	Household furniture	9,065	276,284	692,827	274,800	9,878,100	19,912,900	3.3	2.8	3.5
2511	Wood household furniture	2,183	85,549	192,599	130,900	4,399,000	8,302,900	1.7	1.9	2.3
2512	Upholstered household furniture	H	(D)	(D)	83,800	2,809,100	5,815,300	(D)	(D)	(D)
2514	Metal household furniture	B	(D)	(D)	26,500	1,032,400	2,184,100	(D)	(D)	(D)
2515	Mattresses and bedsprings	0	0	0	24,700	1,331,400	2,904,900	0	0	0
2517	Wood television and radio cabinets	G	(D)	(D)	3,300	132,600	246,900	(D)	(D)	(D)
2519	Household furniture, nec	1,577	33,088	148,970	5,700	173,700	458,700	27.7	19.0	32.5
252	Office furniture	3,761	277,062	481,778	74,900	4,719,500	8,030,100	5.0	5.9	6.0
2521	Wood office furniture	F	(D)	(D)	28,200	1,100,800	1,998,800	(D)	(D)	(D)
2522	Office furniture, except wood	H	(D)	(D)	46,700	3,618,700	6,031,400	(D)	(D)	(D)
253	Public building and related furniture	G	(D)	(D)	26,000	1,147,100	3,112,400	(D)	(D)	(D)
2531	Public building and related furniture	G	(D)	(D)	26,000	1,147,100	3,112,400	(D)	(D)	(D)
254	Partitions and fixtures	F	(D)	(D)	72,600	3,409,300	6,193,000	(D)	(D)	(D)
2541	Wood partitions and fixtures	C	(D)	(D)	40,100	1,788,500	3,147,200	(D)	(D)	(D)
2542	Partitions and fixtures, except wood	F	(D)	(D)	32,500	1,620,800	3,045,800	(D)	(D)	(D)
259	Miscellaneous furniture and fixtures	G	(D)	(D)	50,900	2,490,600	4,433,600	(D)	(D)	(D)
2591	Drapery hardware and blinds and shades	G	(D)	(D)	19,000	1,005,100	1,886,300	(D)	(D)	(D)
2599	Furniture and fixtures, nec	C	(D)	(D)	31,900	1,485,600	2,547,300	(D)	(D)	(D)
26	**Paper and allied products**	**48,644**	**4,709,223**	**11,395,189**	628,100	59,823,300	131,444,600	7.7	7.9	8.7
261	Pulp mills	E	(D)	(D)	16,100	3,416,400	6,239,100	(D)	(D)	(D)
2611	Pulp mills	E	(D)	(D)	16,100	3,416,400	6,239,100	(D)	(D)	(D)
262	Paper mills	10,612	1,458,591	3,553,586	130,100	16,599,800	35,321,800	8.2	8.8	10.1
2621	Paper mills	10,612	1,458,591	3,553,586	130,100	16,599,800	35,321,800	8.2	8.8	10.1
263	Paperboard mills	7,562	1,119,742	2,147,095	53,100	8,123,000	15,919,300	14.2	13.8	13.5
2631	Paperboard mills	7,562	1,119,742	2,147,095	53,100	8,123,000	15,919,300	14.2	13.8	13.5
265	Paperboard containers and boxes	17,531	997,570	3,034,012	200,300	11,082,100	30,510,400	8.8	9.0	9.9
2652	Setup paperboard boxes	344	22,552	42,885	8,800	312,900	565,100	3.9	7.2	7.6
2653	Corrugated and solid fiber boxes	9,976	538,037	1,891,850	110,100	5,901,900	18,572,200	9.1	9.1	10.2
2655	Fiber cans, drums and similar products	G	(D)	(D)	13,300	750,600	1,884,900	(D)	(D)	(D)
2656	Sanitary food containers	C	(D)	(D)	17,500	1,074,400	2,518,700	(D)	(D)	(D)
2657	Folding paperboard boxes	5,477	347,908	873,388	50,700	3,042,400	6,969,400	10.8	11.4	12.5
267	Miscellaneous converted paper products	J	(D)	(D)	228,500	20,602,000	43,454,000	(D)	(D)	(D)
2671	Paper coated and laminated, packaging	1,404	80,606	257,078	16,400	1,133,400	3,026,700	8.6	7.1	8.5
2672	Paper coated and laminated, nec	4,579	443,059	1,185,660	35,000	3,321,000	7,077,800	13.1	13.3	16.8
2673	Bags: plastics, laminated, and coated	1,101	84,592	177,252	37,400	2,625,100	5,494,600	2.9	3.2	3.2
2674	Bags: uncoated paper and multiwall	723	34,172	96,731	16,900	877,100	2,750,100	4.3	3.9	3.5
2675	Die-cut paper and board	G	(D)	(D)	16,800	1,045,700	2,119,000	(D)	(D)	(D)
2676	Sanitary paper products	B	(D)	(D)	39,000	7,896,200	14,709,200	(D)	(D)	(D)
2677	Envelopes	C	(D)	(D)	26,100	1,194,900	2,816,600	(D)	(D)	(D)
2678	Stationery products	B	(D)	(D)	10,100	577,900	1,332,100	(D)	(D)	(D)
2679	Converted paper products, nec	3,354	251,711	504,305	30,700	1,930,700	4,127,900	10.9	13.0	12.2
27	**Printing and publishing**	**103,983**	**10,408,807**	**16,499,934**	**1,538,100**	**103,179,000**	**157,059,500**	6.8	10.1	10.5
271	Newspapers	19,774	798,449	1,055,891	443,400	26,559,600	34,641,700	4.5	3.0	3.0
2711	Newspapers	19,774	798,449	1,055,891	443,400	26,559,600	34,641,700	4.5	3.0	3.0
272	Periodicals	14,122	1,957,867	3,124,876	115,200	13,847,700	20,396,700	12.3	14.1	15.3
2721	Periodicals	14,122	1,957,867	3,124,876	115,200	13,847,700	20,396,700	12.3	14.1	15.3
273	Books	21,423	3,365,885	4,660,080	122,200	13,320,400	19,449,900	17.5	25.3	24.0
2731	Book publishing	17,407	3,167,853	4,305,984	73,500	10,919,500	15,317,900	23.7	29.0	28.1
2732	Book printing	4,016	198,032	354,096	48,700	2,400,900	4,132,000	8.2	8.2	8.6
274	Miscellaneous publishing	4,732	551,139	650,747	65,200	6,656,200	8,874,700	7.3	8.3	7.3
2741	Miscellaneous publishing	4,732	551,139	650,747	65,200	6,656,200	8,874,700	7.3	8.3	7.3
275	Commercial printing	28,413	2,322,445	4,549,246	580,400	29,001,300	52,903,700	4.9	8.0	8.6
2752	Commercial printing, lithographic	15,041	1,274,879	2,547,334	423,300	21,230,300	38,877,400	3.6	6.0	6.6
2754	Commercial printing, gravure	8,876	732,128	1,473,185	23,900	1,742,000	3,635,900	37.1	42.0	40.5
2759	Commercial printing, nec	4,496	315,438	528,727	133,200	6,029,100	10,390,400	3.4	5.2	5.1
276	Manifold business forms	I	(D)	(D)	50,300	4,038,100	7,807,500	(D)	(D)	(D)
2761	Manifold business forms	I	(D)	(D)	50,300	4,038,100	7,807,500	(D)	(D)	(D)
277	Greeting cards	0	0	0	24,600	2,827,500	3,720,700	0	0	0
2771	Greeting cards	0	0	0	24,600	2,827,500	3,720,700	0	0	0
278	Blankbooks and bookbinding	H	(D)	(D)	70,200	3,218,700	4,549,400	(D)	(D)	(D)
2782	Blankbooks and looseleaf binders	H	(D)	(D)	38,500	2,182,900	3,186,100	(D)	(D)	(D)
2789	Bookbinding and related work	E	(D)	(D)	31,700	1,035,800	1,363,400	(D)	(D)	(D)
279	Printing trade services	2,938	220,906	286,725	66,500	3,709,400	4,715,200	4.4	6.0	6.1
2791	Typesetting	F	(D)	(D)	33,600	1,605,700	1,957,400	(D)	(D)	(D)
2796	Platemaking services	G	(D)	(D)	32,900	2,103,700	2,757,800	(D)	(D)	(D)
28	**Chemicals and allied products**	**242,392**	**48,835,701**	**87,678,890**	853,300	**153,032,400**	**288,183,700**	**28.4**	**31.9**	**30.4**
281	Industrial inorganic chemicals	22,882	4,576,277	7,845,636	100,900	16,099,700	26,690,800	22.7	28.4	29.4
2812	Alkalies and chlorine	E	(D)	(D)	6,800	1,449,900	2,709,800	(D)	(D)	(D)
2813	Industrial gases	H	(D)	(D)	9,000	1,919,200	3,058,100	(D)	(D)	(D)
2816	Inorganic pigments	4,343	1,369,809	2,055,671	8,500	1,930,800	3,203,900	51.1	70.9	64.2
2819	Industrial inorganic chemicals, nec	13,469	2,153,141	4,167,800	76,600	10,799,800	17,719,000	17.6	19.9	23.5
282	Plastics materials and synthetics	54,991	8,854,655	18,797,001	131,600	20,511,200	48,419,800	41.8	43.2	38.8
2821	Plastics materials and resins	14,365	3,446,830	8,244,436	62,400	12,195,300	31,325,800	23.0	28.3	26.3
2822	Synthetic rubber	I	(D)	(D)	11,400	1,706,700	4,210,300	(D)	(D)	(D)
2823	Cellulosic manmade fibers	H	(D)	(D)	9,700	679,000	1,456,700	(D)	(D)	(D)
2824	Organic fibers, noncellulosic	29,307	4,002,359	7,215,738	48,100	5,930,200	11,427,100	60.9	67.5	63.1
283	Drugs	65,378	14,234,655	19,489,079	182,900	38,244,500	53,719,700	35.7	37.2	36.3
2833	Medicinals and botanicals	2,063	259,825	602,462	10,900	2,392,200	4,919,400	18.9	10.9	12.2
2834	Pharmaceutical preparations	51,180	12,591,173	16,760,810	143,800	32,744,700	44,182,300	35.6	38.5	37.9
2835	Diagnostic substances	3,865	476,620	655,862	14,900	1,790,100	2,462,200	25.9	26.6	26.6
2836	Biological products except diagnostic	8,270	907,037	1,469,945	13,300	1,317,400	2,155,800	62.2	68.9	68.2
284	Soap, cleaners, and toilet goods	22,075	5,537,023	9,216,467	126,100	25,007,800	41,437,900	17.5	22.1	22.2
2841	Soap and other detergents	5,439	1,389,093	2,657,805	36,300	7,971,200	15,373,400	15.0	17.4	17.3
2842	Polishes and sanitation goods	H	(D)	(D)	19,600	3,691,400	5,847,900	(D)	(D)	(D)
2843	Surface active agents	H	(D)	(D)	9,100	1,241,000	3,168,300	(D)	(D)	(D)
2844	Toilet preparations	10,436	2,681,808	3,719,110	61,100	12,104,200	17,048,400	17.1	22.2	21.8
285	Paints and allied products	10,833	1,635,949	3,528,421	53,900	6,765,700	14,238,700	20.1	24.2	24.8
2851	Paints and allied products	10,833	1,635,949	3,528,421	53,900	6,765,700	14,238,700	20.1	24.2	24.8
286	Industrial organic chemicals	38,025	9,261,864	19,192,018	125,800	28,813,100	65,695,500	30.2	32.1	29.2
2861	Gum and wood chemicals	F	(D)	(D)	2,500	340,500	642,900	(D)	(D)	(D)
2865	Cyclic crudes and intermediates	I	(D)	(D)	23,000	3,980,100	10,892,600	(D)	(D)	(D)
2869	Industrial organic chemicals, nec	27,762	7,766,996	15,432,739	100,300	24,492,400	54,160,000	27.7	31.7	28.5
287	Agricultural chemicals	10,186	2,623,169	4,815,384	42,800	8,060,000	18,307,400	23.8	32.5	26.3
2873	Nitrogenous fertilizers	F	(D)	(D)	7,500	1,213,300	3,113,400	(D)	(D)	(D)
2874	Phosphatic fertilizers	1,752	195,655	701,957	10,500	1,151,100	4,636,200	16.7	17.0	15.1

See footnotes at end of table.

Table 14.—Employment, Value Added by Manufacture, and Value of Shipments of Foreign-Owned and All U.S. Establishments, by Detailed Industry, 1990—Continued

SIC code	Industry	Foreign-owned establishments			All U.S. establishments			Foreign-owned establishments as a percentage of all U.S. establishments		
		Number of employees	Thousands of dollars		Number of employees [1]	Thousands of dollars		Employment	Value added by manufacture	Value of shipments
			Value added by manufacture	Value of shipments		Value added by manufacture [1]	Value of shipments [2]			
2875	Fertilizers, mixing only	B	(D)	(D)	7,100	552,900	2,018,800	(D)	(D)	(D)
2879	Agricultural chemicals, nec	7,778	2,331,159	3,836,117	17,700	5,142,700	8,538,900	43.9	45.3	44.9
289	Miscellaneous chemical products	18,022	2,112,109	4,794,884	89,200	9,530,600	19,674,000	20.2	22.2	24.4
2891	Adhesives and sealants	5,339	600,694	1,352,921	21,400	2,333,200	5,485,100	24.9	25.7	24.7
2892	Explosives	G	(D)	(D)	13,800	874,400	1,324,600	(D)	(D)	(D)
2893	Printing ink	3,622	408,164	1,291,774	11,400	1,035,700	2,754,400	31.8	39.4	46.9
2895	Carbon black	E	(D)	(D)	1,800	380,000	691,900	(D)	(D)	(D)
2899	Chemical preparations, nec	6,810	863,758	1,786,912	40,900	4,907,200	9,418,000	16.7	17.6	19.0
29	**Petroleum and coal products**	25,638	4,106,797	46,372,551	111,900	27,214,100	172,588,600	22.9	15.1	26.9
291	Petroleum refining	19,702	3,418,395	44,134,647	71,900	22,822,000	159,411,100	27.4	15.0	27.7
2911	Petroleum refining	19,702	3,418,395	44,134,647	71,900	22,822,000	159,411,100	27.4	15.0	27.7
295	Asphalt paving and roofing materials	3,469	413,016	1,073,158	26,700	2,734,700	7,798,700	13.0	15.1	13.8
2951	Asphalt paving mixtures and blocks	H	(D)	(D)	14,300	1,449,800	4,213,800	(D)	(D)	(D)
2952	Asphalt felts and coatings	F	(D)	(D)	12,400	1,284,900	3,584,900	(D)	(D)	(D)
299	Miscellaneous petroleum and coal products	2,467	275,386	1,164,746	13,200	1,657,400	5,378,700	18.7	16.6	21.7
2992	Lubricating oils and greases	G	(D)	(D)	11,200	1,280,300	4,398,500	(D)	(D)	(D)
2999	Petroleum and coal products, nec	C	(D)	(D)	2,000	377,100	980,200	(D)	(D)	(D)
30	**Rubber and miscellaneous plastics products**	120,951	8,757,926	17,790,551	870,100	49,889,000	101,398,200	13.9	17.6	17.5
301	Tires and inner tubes	35,511	3,237,878	5,805,548	67,700	6,488,600	11,860,800	52.5	49.9	48.9
3011	Tires and inner tubes	35,511	3,237,878	5,805,548	67,700	6,488,600	11,860,800	52.5	49.9	48.9
302	Rubber and plastics footwear	789	37,710	66,656	10,500	338,700	650,000	7.5	11.1	10.3
3021	Rubber and plastics footwear	789	37,710	66,656	10,500	338,700	650,000	7.5	11.1	10.3
305	Hose and belting and gaskets and packing	10,126	450,334	863,230	56,300	3,143,300	5,570,200	18.0	14.3	15.5
3052	Rubber and plastics hose and belting	2,588	154,716	323,324	23,100	1,380,100	2,574,800	11.2	11.2	12.6
3053	Gaskets, packing and sealing devices	7,538	295,618	539,906	33,200	1,763,300	2,995,400	22.7	16.8	18.0
306	Fabricated rubber products, nec	15,317	970,180	2,148,422	103,000	5,225,400	10,559,200	14.9	18.6	20.3
3061	Mechanical rubber goods	4,617	273,121	470,427	46,300	2,086,300	3,930,200	10.0	13.1	12.0
3069	Fabricated rubber products, nec	10,700	697,059	1,677,995	56,600	3,139,100	6,629,000	18.9	22.2	25.3
308	Miscellaneous plastics products, nec	59,208	4,061,824	8,906,695	632,600	34,692,900	72,758,000	9.4	11.7	12.2
3081	Unsupported plastics film and sheet	9,582	885,377	1,948,224	51,400	4,294,300	9,284,700	18.6	20.6	21.0
3082	Unsupported plastics profile shapes	3,434	171,737	377,308	26,700	1,285,700	2,688,800	12.9	13.4	14.0
3083	Laminated plastics plate and sheet	3,238	240,299	448,093	17,600	1,159,600	2,293,000	18.4	20.7	19.5
3084	Plastics pipe	2,432	199,298	598,688	12,900	807,700	2,616,000	18.9	24.7	22.9
3085	Plastics bottles	1,466	106,544	200,942	28,800	1,626,400	3,728,900	5.1	6.6	5.4
3086	Plastics foam products	6,382	413,715	1,027,385	63,700	3,788,300	8,988,200	10.0	10.9	11.4
3087	Custom compound purchased resins	2,927	233,343	720,485	18,200	1,297,800	3,246,900	16.1	18.0	22.2
3088	Plastics plumbing fixtures	1,588	205,501	301,540	9,100	577,200	965,200	17.5	35.6	31.2
3089	Plastics products, nec	28,159	1,606,010	3,284,030	404,200	19,855,800	38,946,300	7.0	8.1	8.4
31	**Leather and leather products**	6,362	287,251	608,138	117,400	4,586,600	9,887,300	5.4	6.3	6.2
311	Leather tanning and finishing	G	(D)	(D)	12,100	779,900	2,410,900	(D)	(D)	(D)
3111	Leather tanning and finishing	G	(D)	(D)	12,100	779,900	2,410,900	(D)	(D)	(D)
313	Footwear cut stock	E	(D)	(D)	5,200	196,400	413,300	(D)	(D)	(D)
3131	Footwear cut stock	E	(D)	(D)	5,200	196,400	413,300	(D)	(D)	(D)
314	Footwear, except rubber	3,191	98,155	207,045	62,000	2,120,300	4,232,100	5.1	4.6	4.9
3142	House slippers	0	0	0	4,300	160,700	276,000	0	0	0
3143	Men's footwear, except athletic	H	(D)	(D)	28,500	1,058,600	2,148,800	(D)	(D)	(D)
3144	Women's footwear, except athletic	0	0	0	21,800	682,700	1,393,200	0	0	0
3149	Footwear, except rubber, nec	F	(D)	(D)	7,500	218,200	414,100	(D)	(D)	(D)
315	Leather gloves and mittens	0	0	0	2,800	59,200	154,800	0	0	0
3151	Leather gloves and mittens	0	0	0	2,800	59,200	154,800	0	0	0
316	Luggage	B	(D)	(D)	14,000	618,000	1,169,400	(D)	(D)	(D)
3161	Luggage	B	(D)	(D)	14,000	618,000	1,169,400	(D)	(D)	(D)
317	Handbags and personal leather goods	905	37,599	60,148	12,800	509,600	912,200	7.1	7.4	6.6
3171	Women's handbags and purses	905	37,599	60,148	6,400	319,700	546,900	14.1	11.8	11.0
3172	Personal leather goods, nec	0	0	0	6,500	189,900	365,200	0	0	0
319	Leather goods, nec	C	(D)	(D)	8,600	303,200	594,700	(D)	(D)	(D)
3199	Leather goods, nec	C	(D)	(D)	8,600	303,200	594,700	(D)	(D)	(D)
32	**Stone, clay, and glass products**	105,578	8,450,211	16,407,454	509,100	34,140,200	63,468,000	20.7	24.8	25.9
321	Flat glass	I	(D)	(D)	14,600	1,394,800	2,279,000	(D)	(D)	(D)
3211	Flat glass	I	(D)	(D)	14,600	1,394,800	2,279,000	(D)	(D)	(D)
322	Glass and glassware, pressed or blown	21,522	1,645,014	2,887,318	72,000	5,342,800	8,918,000	29.9	30.8	32.4
3221	Glass containers	16,391	1,266,761	2,250,907	36,600	2,751,400	4,946,100	44.8	46.0	45.5
3229	Pressed and blown glass, nec	5,131	378,253	636,411	35,400	2,591,400	3,971,900	14.5	14.6	16.0
323	Products of purchased glass	6,953	427,734	907,180	53,900	3,341,500	6,141,300	12.9	12.8	14.8
3231	Products of purchased glass	6,953	427,734	907,180	53,900	3,341,500	6,141,300	12.9	12.8	14.8
324	Cement, hydraulic	10,501	1,353,752	2,702,922	17,600	2,196,800	4,250,700	59.7	61.6	63.6
3241	Cement, hydraulic	10,501	1,353,752	2,702,922	17,600	2,196,800	4,250,700	59.7	61.6	63.6
325	Structural clay products	7,744	415,096	717,904	34,000	1,852,900	3,086,500	22.8	22.4	23.3
3251	Brick and structural clay tile	4,550	223,697	365,407	15,500	753,500	1,168,700	29.4	29.7	31.3
3253	Ceramic wall and floor tile	G	(D)	(D)	9,800	556,600	845,000	(D)	(D)	(D)
3255	Clay refractories	1,546	89,329	195,268	6,500	451,400	922,900	23.8	19.8	21.2
3259	Structural clay products, nec	E	(D)	(D)	2,200	91,300	149,800	(D)	(D)	(D)
326	Pottery and related products	G	(D)	(D)	37,700	1,838,800	2,613,400	(D)	(D)	(D)
3261	Vitreous plumbing fixtures	C	(D)	(D)	9,300	578,000	825,100	(D)	(D)	(D)
3262	Vitreous china table and kitchenware	0	0	0	6,000	278,100	342,000	0	0	0
3263	Semivitreous table and kitchenware	0	0	0	1,200	34,200	44,500	0	0	0
3264	Porcelain electrical supplies	G	(D)	(D)	8,900	539,400	810,000	(D)	(D)	(D)
3269	Pottery products, nec	E	(D)	(D)	12,200	409,100	591,700	(D)	(D)	(D)
327	Concrete, gypsum, and plaster products	33,113	2,227,089	4,875,489	194,600	11,661,600	24,595,000	17.0	19.1	19.8
3271	Concrete block and brick	2,033	140,560	285,310	18,300	1,134,300	2,304,000	11.1	12.4	12.4
3272	Concrete products, nec	10,816	626,350	1,162,562	68,300	3,504,200	6,366,500	15.8	17.9	18.3
3273	Ready-mixed concrete	15,646	1,049,622	2,467,829	91,800	5,633,500	12,829,600	17.0	18.6	19.2
3274	Lime	1,259	106,599	193,846	4,700	422,500	719,800	26.8	25.2	26.9
3275	Gypsum products	3,359	303,958	765,942	11,500	967,000	2,375,100	29.2	31.4	32.2
328	Cut stone and stone products	C	(D)	(D)	13,900	575,300	988,800	(D)	(D)	(D)
3281	Cut stone and stone products	C	(D)	(D)	13,900	575,300	988,800	(D)	(D)	(D)
329	Miscellaneous nonmetallic mineral products	18,413	1,749,413	3,298,011	70,800	5,935,700	10,595,300	26.0	29.5	31.1
3291	Abrasive products	7,997	922,877	1,711,414	24,200	2,130,600	3,898,400	33.0	43.3	43.9
3292	Asbestos products	C	(D)	(D)	3,100	198,700	352,600	(D)	(D)	(D)
3295	Minerals, ground or treated	2,974	204,578	467,005	9,000	848,700	1,499,800	33.0	24.1	31.1
3296	Mineral wool	3,516	303,216	557,928	19,000	1,807,700	3,099,800	18.5	16.8	18.0
3297	Nonclay refractories	3,404	274,990	465,817	8,400	573,400	1,077,600	40.5	48.0	43.2
3299	Nonmetallic mineral products, nec	E	(D)	(D)	7,100	376,600	667,200	(D)	(D)	(D)

See footnotes at end of table.

Table 14.—Employment, Value Added by Manufacture, and Value of Shipments of Foreign-Owned and All U.S. Establishments, by Detailed Industry, 1990—Continued

SIC code	Industry	Foreign-owned establishments			All U.S. establishments			Foreign-owned establishments as a percentage of all U.S. establishments		
		Number of employees	Thousands of dollars		Number of employees [1]	Thousands of dollars		Employment	Value added by manufacture	Value of shipments
			Value added by manufacture	Value of shipments		Value added by manufacture [1]	Value of shipments [2]			
33	**Primary metal industries**	**119,087**	**10,297,630**	**31,902,909**	**711,900**	**53,366,600**	**146,052,000**	**16.7**	**19.3**	**21.8**
331	Blast furnace and basic steel products	60,902	5,487,240	14,963,600	258,800	23,766,000	62,121,100	23.5	23.1	24.1
3312	Blast furnaces and steel mills	45,361	4,215,490	11,073,717	188,500	18,283,000	45,950,400	24.1	23.1	24.1
3313	Electrometallurgical products	2,502	225,270	540,250	5,200	431,200	1,180,400	48.1	52.2	45.8
3315	Steel wire and related products	5,762	338,443	833,015	26,700	1,723,400	4,179,700	21.6	19.6	19.9
3316	Cold finishing of steel shapes	3,210	343,536	1,387,426	16,300	1,620,800	5,842,200	19.7	21.2	23.7
3317	Steel pipe and tubes	4,067	364,501	1,129,192	22,100	1,707,700	4,968,500	18.4	21.3	22.7
332	Iron and steel foundries	10,651	650,840	1,172,560	132,500	6,691,500	12,064,500	8.0	9.7	9.7
3321	Gray and ductile iron foundries	3,204	160,093	366,026	81,000	4,111,200	7,825,300	4.0	3.9	4.7
3322	Malleable iron foundries	0	0	0	4,900	196,800	320,600	0	0	0
3324	Steel investment foundries	I	(D)	(D)	19,800	1,033,500	1,592,100	(D)	(D)	(D)
3325	Steel foundries, nec	G	(D)	(D)	26,700	1,350,000	2,326,500	(D)	(D)	(D)
333	Primary nonferrous metals	9,006	1,096,651	5,122,942	34,700	4,265,800	15,507,100	26.0	25.7	33.0
3331	Primary copper	G	(D)	(D)	4,600	918,000	4,201,200	(D)	(D)	(D)
3334	Primary aluminum	H	(D)	(D)	19,500	2,205,600	7,033,900	(D)	(D)	(D)
3339	Primary nonferrous metals, nec	3,956	500,755	2,615,331	10,600	1,142,200	4,272,000	37.3	43.8	61.2
334	Secondary nonferrous metals	1,369	127,534	580,769	14,700	1,107,500	6,130,200	9.3	11.5	9.5
3341	Secondary nonferrous metals	1,369	127,534	580,769	14,700	1,107,500	6,130,200	9.3	11.5	9.5
335	Nonferrous rolling and drawing	30,029	2,367,427	8,977,349	157,100	11,832,500	39,330,900	19.1	20.0	22.8
3351	Copper rolling and drawing	2,948	227,006	982,802	21,400	1,679,300	6,880,200	13.8	13.5	14.3
3353	Aluminum sheet, plate, and foil	7,405	609,787	3,765,865	25,100	2,508,500	11,121,500	29.5	24.3	33.9
3354	Aluminum extruded products	H	(D)	(D)	30,900	1,466,900	4,850,300	(D)	(D)	(D)
3355	Aluminum rolling and drawing, nec	B	(D)	(D)	800	54,600	388,300	(D)	(D)	(D)
3356	Nonferrous rolling and drawing, nec	5,354	450,339	1,140,812	18,600	1,502,500	3,481,200	28.8	30.0	32.8
3357	Nonferrous wiredrawing and insulating	10,026	910,548	2,472,542	60,200	4,620,700	12,609,400	16.7	19.7	19.6
336	Nonferrous foundries (castings)	4,125	215,566	412,845	79,800	3,548,000	7,159,300	5.2	6.1	5.8
3363	Aluminum die-castings	1,051	60,815	109,066	28,800	1,326,600	2,779,500	3.6	4.6	3.9
3364	Nonferrous die-casting except aluminum	1,378	76,771	137,898	13,200	598,200	1,317,900	10.4	12.8	10.5
3365	Aluminum foundries	879	35,879	84,672	23,600	980,700	1,919,100	3.7	3.7	4.4
3366	Copper foundries	440	23,689	44,381	9,000	353,100	677,800	4.9	6.7	6.5
3369	Nonferrous foundries, nec	377	18,412	36,828	5,200	289,500	465,000	7.3	6.4	7.9
339	Miscellaneous primary metal products	3,005	352,372	672,844	34,200	2,155,300	3,738,800	8.8	16.3	18.0
3398	Metal heat treating	619	54,553	70,710	20,500	1,274,000	1,871,700	3.0	4.3	3.8
3399	Primary metal products, nec	2,386	297,819	602,134	13,700	881,300	1,867,100	17.4	33.8	32.3
34	**Fabricated metal products**	**93,300**	**6,350,246**	**13,973,579**	**1,438,700**	**79,951,900**	**163,052,800**	**6.5**	**7.9**	**8.6**
341	Metal cans and shipping containers	I	(D)	(D)	43,100	4,090,500	13,555,700	(D)	(D)	(D)
3411	Metal cans	I	(D)	(D)	35,900	3,668,400	12,342,400	(D)	(D)	(D)
3412	Metal barrels, drums, and pails	F	(D)	(D)	7,200	422,100	1,213,300	(D)	(D)	(D)
342	Cutlery, handtools, and hardware	7,490	520,445	880,277	139,000	8,504,200	14,666,300	5.4	6.1	6.0
3421	Cutlery	E	(D)	(D)	10,900	977,800	1,320,500	(D)	(D)	(D)
3423	Hand and edge tools, nec	G	(D)	(D)	40,600	2,392,800	3,966,700	(D)	(D)	(D)
3425	Saw blades and handsaws	199	11,253	19,052	8,700	540,300	916,800	2.3	2.1	2.1
3429	Hardware, nec	5,804	370,289	646,714	78,800	4,593,300	8,462,300	7.4	8.1	7.6
343	Plumbing and heating, except electric	893	43,752	91,560	43,400	3,079,500	5,897,200	2.1	1.4	1.6
3431	Metal sanitary ware	C	(D)	(D)	7,700	524,800	980,000	(D)	(D)	(D)
3432	Plumbing fixture fittings and trim	B	(D)	(D)	17,300	1,400,100	2,749,900	(D)	(D)	(D)
3433	Heating equipment, except electric	617	34,384	71,294	18,400	1,154,600	2,167,400	3.4	3.0	3.3
344	Fabricated structural metal products	29,974	1,759,842	3,963,428	405,900	19,934,500	44,936,100	7.4	8.8	8.8
3441	Fabricated structural metal	3,542	196,117	456,577	82,700	4,035,400	9,788,100	4.3	4.9	4.7
3442	Metal doors, sash, and trim	5,478	279,379	648,667	72,200	3,053,500	6,981,500	7.6	9.1	9.3
3443	Fabricated plate work (boiler shops)	9,865	623,795	1,146,070	76,100	4,198,500	8,653,700	13.0	14.9	13.2
3444	Sheet metal work	3,743	255,366	718,505	99,100	4,867,400	10,249,100	3.8	5.2	7.0
3446	Architectural metal work	1,796	80,549	142,548	30,000	1,350,800	2,492,900	6.0	6.0	5.7
3448	Prefabricated metal buildings	4,682	264,414	683,464	22,800	1,183,000	2,984,100	20.5	22.4	22.9
3449	Miscellaneous metal work	868	60,222	167,597	23,000	1,245,900	3,786,800	3.8	4.8	4.4
345	Screw machine products, bolts, etc	H	(D)	(D)	95,200	5,150,400	8,723,000	(D)	(D)	(D)
3451	Screw machine products	F	(D)	(D)	42,400	1,956,000	3,034,400	(D)	(D)	(D)
3452	Bolts, nuts, rivets, and washers	H	(D)	(D)	52,800	3,194,400	5,688,600	(D)	(D)	(D)
346	Metal forgings and stampings	12,364	779,611	1,671,569	249,000	13,665,600	29,662,800	5.0	5.7	5.6
3462	Iron and steel forgings	1,026	66,069	141,519	28,400	1,764,900	3,858,800	3.6	3.7	3.7
3463	Nonferrous forgings	F	(D)	(D)	7,200	495,200	1,159,100	(D)	(D)	(D)
3465	Automotive stampings	7,486	499,953	998,998	110,600	6,300,200	14,544,500	6.8	7.9	6.9
3466	Crowns and closures	F	(D)	(D)	4,400	358,200	720,200	(D)	(D)	(D)
3469	Metal stampings, nec	2,645	140,343	345,992	98,400	4,747,300	9,380,200	2.7	3.0	3.7
347	Metal services, nec	2,818	139,431	300,355	117,400	5,410,300	9,441,900	2.4	2.6	3.2
3471	Plating and polishing	1,766	80,996	150,156	73,200	2,981,000	4,513,300	2.4	2.7	3.3
3479	Metal coating and allied services	1,052	58,435	150,199	44,300	2,429,300	4,928,700	2.4	2.4	3.0
348	Ordnance and accessories, nec	8,880	627,458	875,955	70,500	4,741,100	6,725,100	12.6	13.2	13.0
3482	Small arms ammunition	F	(D)	(D)	8,500	535,900	844,100	(D)	(D)	(D)
3483	Ammunition, except for small arms, nec	3,229	224,824	332,965	27,100	1,908,900	3,128,600	11.9	11.8	10.6
3484	Small arms	4,152	311,061	376,861	12,500	859,900	1,108,800	33.2	36.2	34.0
3489	Ordnance and accessories, nec	F	(D)	(D)	22,400	1,436,400	1,643,600	(D)	(D)	(D)
349	Miscellaneous fabricated metal products	19,488	1,365,184	2,903,330	275,100	15,375,700	29,444,700	7.1	8.9	9.9
3491	Industrial valves	3,772	308,526	516,548	46,400	3,385,500	5,745,400	8.1	9.1	9.0
3492	Fluid power valves and hose fittings	2,773	163,642	291,756	30,900	1,913,600	3,322,800	9.0	8.6	8.8
3493	Steel springs, except wire	658	41,082	91,764	6,100	286,400	524,700	10.8	14.3	17.5
3494	Valves and pipe fittings, nec	1,961	138,061	218,489	26,000	1,535,800	2,924,000	7.5	9.0	7.5
3495	Wire springs	752	47,549	94,747	20,100	974,700	1,843,900	3.7	4.9	5.1
3496	Miscellaneous fabricated wire products	1,127	76,025	177,381	33,200	1,552,100	2,999,700	3.4	4.9	5.9
3497	Metal foil and leaf	2,971	233,451	773,891	10,600	938,400	2,845,800	28.0	24.9	27.2
3498	Fabricated pipe and fittings	1,318	82,758	173,957	21,900	1,027,000	2,333,800	6.0	8.1	7.5
3499	Fabricated metal products, nec	4,156	274,090	564,797	80,000	3,762,300	6,904,600	5.2	7.3	8.2
35	**Industrial machinery and equipment**	**191,440**	**13,561,697**	**31,010,583**	**1,876,700**	**132,165,800**	**256,344,700**	**10.2**	**10.3**	**12.1**
351	Engines and turbines	16,390	1,112,504	3,116,038	83,200	7,159,000	16,580,900	19.7	15.5	18.8
3511	Turbines and turbine generator sets	G	(D)	(D)	21,900	2,259,200	4,356,700	(D)	(D)	(D)
3519	Internal combustion engines, nec	J	(D)	(D)	61,300	4,899,800	12,224,200	(D)	(D)	(D)
352	Farm and garden machinery	12,375	835,435	2,111,956	94,100	7,985,000	16,456,200	13.2	10.5	12.8
3523	Farm machinery and equipment	3,120	203,438	402,467	69,600	5,978,500	11,546,200	4.5	3.4	3.5
3524	Lawn and garden equipment	9,255	631,997	1,709,489	24,500	2,006,500	4,910,000	37.8	31.5	34.8
353	Construction and related machinery	27,880	1,598,623	4,021,136	202,700	13,928,000	30,696,600	13.8	11.5	13.1
3531	Construction machinery	11,704	732,113	1,908,758	89,900	6,797,300	16,069,600	13.0	10.8	11.9
3532	Mining machinery	3,171	192,219	461,029	15,500	912,800	1,865,500	20.5	21.1	24.7
3533	Oil and gas field machinery	3,705	201,485	467,686	27,200	2,040,900	3,634,700	13.6	9.9	12.9
3534	Elevators and moving stairways	G	(D)	(D)	9,200	556,500	1,343,100	(D)	(D)	(D)
3535	Conveyors and conveying equipment	5,025	276,854	605,623	32,900	2,066,300	4,089,900	15.3	13.4	14.8
3536	Hoists, cranes, and monorails	F	(D)	(D)	7,900	517,500	966,400	(D)	(D)	(D)

See footnotes at end of table.

Table 14.—Employment, Value Added by Manufacture, and Value of Shipments of Foreign-Owned and All U.S. Establishments, by Detailed Industry, 1990—Continued

SIC code	Industry	Foreign-owned establishments			All U.S. establishments			Foreign-owned establishments as a percentage of all U.S. establishments		
		Number of employees	Thousands of dollars		Number of employees [1]	Thousands of dollars		Employment	Value added by manufacture	Value of shipments
			Value added by manufacture	Value of shipments		Value added by manufacture [1]	Value of shipments [2]			
3537	Industrial trucks and tractors	2,383	115,580	291,798	20,100	1,036,700	2,727,500	11.9	11.1	10.7
354	Metalworking machinery	19,092	1,394,423	2,725,415	280,800	16,515,600	27,035,200	6.8	8.4	10.1
3541	Machine tools, metal cutting types	2,062	171,141	443,218	30,300	1,890,300	3,606,800	6.8	9.1	12.3
3542	Machine tools, metal forming types	1,883	96,304	256,698	14,600	853,800	1,652,700	12.9	11.3	15.5
3543	Industrial patterns	F	(D)	(D)	8,100	396,600	534,300	(D)	(D)	(D)
3544	Special dies, tools, jigs and fixtures	2,608	184,990	362,528	119,800	6,525,400	9,487,200	2.2	2.8	3.8
3545	Machine tool accessories	4,849	344,150	518,199	55,200	3,072,400	4,550,400	8.8	11.2	11.4
3546	Power-driven handtools	3,110	230,447	573,896	18,300	1,471,800	2,805,800	17.0	15.7	20.5
3547	Rolling mill machinery	A	(D)	(D)	3,800	173,300	483,400	(D)	(D)	(D)
3548	Welding apparatus	2,678	267,392	407,136	19,200	1,457,000	2,683,600	13.9	18.4	15.2
3549	Metalworking machinery, nec	F	(D)	(D)	11,700	675,100	1,231,100	(D)	(D)	(D)
355	Special industry machinery	24,212	1,734,560	3,800,482	172,300	11,002,600	21,258,400	14.1	15.8	17.9
3552	Textile machinery	G	(D)	(D)	16,000	814,900	1,505,100	(D)	(D)	(D)
3553	Woodworking machinery	B	(D)	(D)	7,800	477,400	936,600	(D)	(D)	(D)
3554	Paper industries machinery	7,475	434,247	1,362,140	20,300	1,118,700	2,770,400	36.8	38.8	49.2
3555	Printing trades machinery	4,104	452,470	794,591	25,000	1,808,200	3,538,200	16.4	25.0	22.5
3556	Food products machinery	4,258	297,397	525,508	19,000	1,266,300	2,260,900	22.4	23.5	23.2
3559	Special industry machinery, nec	6,885	454,441	921,544	84,200	5,517,000	10,247,100	8.2	8.2	9.0
356	General industrial machinery	31,198	2,208,830	4,090,152	260,100	16,811,000	30,338,800	12.0	13.1	13.5
3561	Pumps and pumping equipment	4,196	206,436	459,482	37,400	2,552,800	4,830,300	11.2	8.1	9.5
3562	Ball and roller bearings	10,717	719,562	1,254,013	39,000	2,481,700	4,306,300	27.5	29.0	29.1
3563	Air and gas compressors	1,174	119,325	377,131	24,500	1,769,900	3,806,900	4.8	6.7	9.9
3564	Blowers and fans	3,980	257,166	508,765	27,700	1,519,600	2,850,100	14.4	16.9	17.9
3565	Packaging machinery	2,931	231,718	339,278	23,500	1,735,400	2,762,200	12.5	13.4	12.3
3566	Speed changers, drives, and gears	1,165	84,437	134,194	18,400	1,353,000	2,055,700	6.3	6.2	6.5
3567	Industrial furnaces and ovens	905	66,086	125,897	18,900	902,500	1,766,100	4.8	7.3	7.1
3568	Power transmission equipment, nec	1,225	103,237	153,139	23,700	1,503,300	2,596,500	5.2	6.9	5.9
3569	General industrial machinery, nec	4,905	420,863	738,253	47,000	2,992,800	5,364,700	10.4	14.1	13.8
357	Computer and office equipment	30,831	2,913,058	7,115,958	287,700	31,283,300	64,073,300	10.7	9.3	11.1
3571	Electronic computers	16,459	1,834,287	4,529,638	134,100	19,666,300	39,293,600	12.3	9.3	11.5
3572	Computer storage devices	2,357	203,435	496,052	42,600	4,359,000	8,751,100	5.5	4.7	5.7
3575	Computer terminals	G	(D)	(D)	12,100	728,500	1,790,000	(D)	(D)	(D)
3577	Computer peripheral equipment, nec	5,873	416,633	1,175,119	59,100	3,923,000	9,146,300	9.9	10.6	12.8
3578	Calculating and accounting equipment	F	(D)	(D)	7,400	620,400	1,170,200	(D)	(D)	(D)
3579	Office machines, nec	4,507	323,078	568,349	32,500	1,986,200	3,922,100	13.9	16.3	14.5
358	Refrigeration and service machinery	18,237	1,042,239	2,753,038	186,000	12,158,500	26,218,200	9.8	8.6	10.5
3581	Automatic vending machines	F	(D)	(D)	7,400	338,100	741,700	(D)	(D)	(D)
3582	Commercial laundry equipment	E	(D)	(D)	5,200	240,400	526,600	(D)	(D)	(D)
3585	Refrigeration and heating equipment	12,482	643,108	1,969,831	126,900	8,339,500	19,043,200	9.8	7.7	10.3
3586	Measuring and dispensing pumps	G	(D)	(D)	8,000	519,100	1,029,500	(D)	(D)	(D)
3589	Service industry machinery, nec	2,542	208,850	390,279	38,600	2,721,400	4,877,200	6.6	7.7	8.0
359	Industrial machinery, nec	11,225	722,025	1,276,408	309,600	15,322,800	23,687,100	3.6	4.7	5.4
3592	Carburetors, pistons, rings, valves	3,372	142,034	289,111	20,600	1,045,800	2,042,400	16.4	13.6	14.2
3593	Fluid power cylinders and actuators	1,344	90,006	160,152	20,700	1,195,300	1,981,900	6.5	7.5	8.1
3594	Fluid power pumps and motors	2,171	196,397	320,944	14,900	1,004,100	1,798,600	14.6	19.6	17.8
3596	Scales and balances, except laboratory	1,782	136,089	257,590	6,300	336,400	680,000	28.3	40.5	37.9
3599	Industrial machinery, nec	2,556	157,499	248,611	247,200	11,741,200	17,184,100	1.0	1.3	1.4
36	**Electronic and other electric equipment**	228,237	16,703,246	34,601,773	1,497,400	106,983,900	194,847,900	15.2	15.6	17.8
361	Electric distribution equipment	15,390	1,075,338	2,305,772	75,100	5,206,700	9,728,600	20.5	20.7	23.7
3612	Transformers, except electronic	I	(D)	(D)	32,800	1,892,300	4,177,800	(D)	(D)	(D)
3613	Switchgear and switchboard apparatus	I	(D)	(D)	42,300	3,314,400	5,550,800	(D)	(D)	(D)
362	Electrical industrial apparatus	22,343	1,426,822	2,588,408	161,900	10,126,800	18,158,700	13.8	14.1	14.3
3621	Motors and generators	11,175	592,403	1,158,605	72,600	4,005,300	7,672,200	15.4	14.8	15.1
3624	Carbon and graphite products	2,338	133,675	256,027	8,600	586,800	1,166,900	27.2	22.8	21.9
3625	Relays and industrial controls	6,485	500,490	832,448	66,000	4,688,400	7,854,200	9.8	10.7	10.6
3629	Electrical industrial apparatus, nec	2,345	200,254	341,328	14,600	846,300	1,465,400	16.1	23.7	23.3
363	Household appliances	19,287	1,131,593	2,666,319	110,500	7,835,900	18,069,000	17.5	14.4	14.8
3631	Household cooking equipment	H	(D)	(D)	19,200	1,138,900	2,994,000	(D)	(D)	(D)
3632	Household refrigerators and freezers	H	(D)	(D)	23,600	1,464,300	3,799,800	(D)	(D)	(D)
3633	Household laundry equipment	G	(D)	(D)	16,100	1,543,100	3,234,400	(D)	(D)	(D)
3634	Electric housewares and fans	H	(D)	(D)	24,900	1,425,000	3,055,900	(D)	(D)	(D)
3635	Household vacuum cleaners	4,270	272,025	483,156	12,400	997,800	1,860,100	34.4	27.3	26.0
3639	Household appliances, nec	H	(D)	(D)	14,200	1,266,900	3,124,900	(D)	(D)	(D)
364	Electric lighting and wiring equipment	15,332	983,402	1,817,322	156,600	10,768,500	19,322,300	9.8	9.1	9.4
3641	Electric lamps	H	(D)	(D)	19,800	1,862,500	2,830,900	(D)	(D)	(D)
3643	Current-carrying wiring devices	2,898	129,383	231,081	44,100	2,642,100	4,404,000	6.6	4.9	5.2
3644	Noncurrent-carrying wiring devices	793	73,858	126,128	22,600	1,919,500	3,346,100	3.5	3.8	3.8
3645	Residential lighting fixtures	1,939	95,361	180,434	17,800	826,000	1,561,300	10.9	11.5	11.6
3646	Commercial lighting fixtures	G	(D)	(D)	23,000	1,609,800	3,208,900	(D)	(D)	(D)
3647	Vehicular lighting equipment	1,611	106,561	201,219	14,900	1,025,100	2,121,700	10.8	10.4	9.5
3648	Lighting equipment, nec	1,697	89,390	194,671	14,500	883,600	1,849,500	11.7	10.1	10.5
365	Household audio and video equipment	19,299	1,664,553	5,924,331	44,700	3,150,000	9,376,700	43.2	52.8	63.2
3651	Household audio and video equipment	13,038	923,399	4,924,250	30,800	1,892,000	7,520,500	42.3	48.8	65.5
3652	Prerecorded records and tapes	6,261	741,154	1,000,081	13,900	1,257,900	1,856,100	45.0	58.9	53.9
366	Communications equipment	36,028	3,279,104	6,524,868	250,400	22,349,700	38,451,700	14.4	14.7	17.0
3661	Telephone and telegraph apparatus	17,726	1,991,593	3,778,517	92,700	9,619,400	17,297,300	19.1	20.7	21.8
3663	Radio and television communications equipment	13,338	953,866	2,140,417	135,400	11,278,000	18,759,300	9.9	8.5	11.4
3669	Communications equipment, nec	4,964	333,645	605,934	22,400	1,452,300	2,395,100	22.2	23.0	25.3
367	Electronic components and accessories	74,588	5,484,636	8,944,169	535,900	37,270,000	60,844,000	13.9	14.7	14.7
3671	Electron tubes	7,508	500,498	1,096,153	23,400	1,317,800	2,570,400	32.1	38.0	42.6
3672	Printed circuit boards	3,325	173,596	316,281	76,700	4,997,200	7,844,100	4.3	3.5	4.0
3674	Semiconductors and related devices	34,660	3,340,139	4,927,774	181,800	17,855,500	25,977,300	19.1	18.7	19.0
3675	Electronic capacitors	6,098	293,898	535,530	19,500	848,500	1,471,600	31.3	34.6	36.4
3676	Electronic resistors	4,549	173,124	317,477	14,400	535,400	862,700	31.6	32.3	36.8
3677	Electronic coils and transformers	550	29,169	41,819	22,800	599,100	1,074,600	2.4	4.9	3.9
3678	Electronic connectors	3,736	311,131	446,049	37,400	2,389,300	3,820,900	10.0	13.0	11.7
3679	Electronic components, nec	14,162	663,081	1,263,086	159,900	8,727,100	17,222,400	8.9	7.6	7.3
369	Miscellaneous electrical equipment and supplies	25,970	1,657,798	3,830,584	162,200	10,276,300	20,897,000	16.0	16.1	18.3
3691	Storage batteries	3,671	268,456	649,835	23,100	1,718,800	3,625,800	15.9	15.6	17.9
3692	Primary batteries, dry and wet	1,690	64,619	161,492	10,600	761,900	1,580,300	15.9	8.5	10.2
3694	Engine electrical equipment	1,606	86,517	239,178	46,100	2,846,700	5,810,500	3.5	3.0	4.1
3695	Magnetic and optical recording media	7,779	534,811	1,726,704	24,000	1,675,600	4,032,100	32.4	31.9	42.8
3699	Electrical equipment and supplies, nec	11,224	703,395	1,053,375	58,400	3,273,300	5,848,300	19.2	21.5	18.0
37	**Transportation equipment**	104,147	7,170,588	28,834,909	1,773,700	146,916,300	367,926,700	5.9	4.9	7.8
371	Motor vehicles and equipment	73,413	5,436,606	25,011,828	704,400	69,648,700	214,963,800	10.4	7.8	11.6
3711	Motor vehicles and car bodies	32,296	3,183,878	18,123,409	239,500	39,504,400	140,417,000	13.5	8.1	12.9

See footnotes at end of table.

Table 14.—Employment, Value Added by Manufacture, and Value of Shipments of Foreign-Owned and All U.S. Establishments, by Detailed Industry, 1990—Continued

SIC code	Industry	Foreign-owned establishments			All U.S. establishments			Foreign-owned establishments as a percentage of all U.S. establishments		
		Number of employees	Thousands of dollars		Number of employees [1]	Thousands of dollars		Employment	Value added by manufacture	Value of shipments
			Value added by manufacture	Value of shipments		Value added by manufacture [1]	Value of shipments [2]			
3713	Truck and bus bodies	G	(D)	(D)	37,200	1,809,300	4,382,200	(D)	(D)	(D)
3714	Motor vehicle parts and accessories	39,230	2,123,952	6,563,321	388,700	26,871,400	64,875,400	10.1	7.9	10.1
3715	Truck trailers	C	(D)	(D)	24,800	869,000	3,122,000	(D)	(D)	(D)
3716	Motor homes	0	0	0	14,100	594,500	2,167,200	0	0	0
372	Aircraft and parts	18,928	985,449	2,223,467	615,700	44,903,200	94,640,200	3.1	2.2	2.3
3721	Aircraft	4,945	243,878	746,741	289,300	20,235,400	51,369,600	1.7	1.2	1.5
3724	Aircraft engines and engine parts	3,013	186,076	397,010	129,000	12,059,100	22,812,800	2.3	1.5	1.7
3728	Aircraft parts and equipment, nec	10,970	555,495	1,079,716	197,500	12,608,700	20,457,900	5.6	4.4	5.3
373	Ship and boat building and repairing	5,993	292,752	590,271	175,200	8,554,700	15,853,700	3.4	3.4	3.7
3731	Ship building and repairing	G	(D)	(D)	121,200	6,362,800	10,855,700	(D)	(D)	(D)
3732	Boat building and repairing	H	(D)	(D)	54,100	2,191,800	4,998,000	(D)	(D)	(D)
374	Railroad equipment	2,312	225,809	339,421	29,500	1,839,200	4,693,600	7.8	12.3	7.2
3743	Railroad equipment	2,312	225,809	339,421	29,500	1,839,200	4,693,600	7.8	12.3	7.2
375	Motorcycles, bicycles, and parts	F	(D)	(D)	9,400	570,800	1,475,800	(D)	(D)	(D)
3751	Motorcycles, bicycles, and parts	F	(D)	(D)	9,400	570,800	1,475,800	(D)	(D)	(D)
376	Guided missiles, space vehicles, parts	G	(D)	(D)	200,300	19,284,300	30,554,100	(D)	(D)	(D)
3761	Guided missiles and space vehicles	0	0	0	156,200	15,782,500	25,082,600	0	0	0
3764	Space propulsion units and parts	0	0	0	29,700	2,412,000	3,755,800	0	0	0
3769	Space vehicle equipment, nec	G	(D)	(D)	14,400	1,089,700	1,715,600	(D)	(D)	(D)
379	Miscellaneous transportation equipment	G	(D)	(D)	39,100	2,115,600	5,745,500	(D)	(D)	(D)
3792	Travel trailers and campers	0	0	0	13,800	622,800	1,657,500	0	0	0
3795	Tanks and tank components	0	0	0	9,300	694,500	1,846,500	0	0	0
3799	Transportation equipment, nec	G	(D)	(D)	16,000	798,300	2,241,500	(D)	(D)	(D)
38	**Instruments and related products**	121,520	9,722,110	15,840,686	948,600	81,665,600	123,776,700	12.8	11.9	12.8
381	Search and navigation equipment	19,160	1,433,915	2,094,047	313,600	24,931,900	36,733,500	6.1	5.8	5.7
3812	Search and navigation equipment	19,160	1,433,915	2,094,047	313,600	24,931,900	36,733,500	6.1	5.8	5.7
382	Measuring and controlling devices	53,500	3,679,493	6,037,558	283,600	19,629,200	31,455,800	18.9	18.7	19.2
3821	Laboratory apparatus and furniture	3,290	333,003	506,393	17,800	1,209,700	1,916,700	18.5	27.5	26.4
3822	Environmental controls	7,702	404,098	669,225	26,100	1,461,600	2,396,000	29.5	27.6	27.9
3823	Process control instruments	13,410	791,866	1,379,551	54,700	3,764,700	5,924,000	24.5	21.0	23.3
3824	Fluid meters and counting devices	3,130	260,544	440,090	10,400	976,700	1,665,900	30.1	26.7	26.4
3825	Instruments to measure electricity	10,806	744,956	1,125,640	78,400	5,352,400	8,389,700	13.8	13.9	13.4
3826	Analytical instruments	5,648	491,886	822,932	37,800	3,018,700	4,906,100	14.9	16.3	16.8
3827	Optical instruments and lenses	3,027	160,220	299,938	22,000	1,326,700	2,217,700	13.8	12.1	13.5
3829	Measuring and controlling devices, nec	6,487	492,920	793,789	36,300	2,518,700	4,039,700	17.9	19.6	19.7
384	Medical instruments and supplies	29,530	2,573,803	4,262,668	234,700	20,286,300	30,934,200	12.6	12.7	13.8
3841	Surgical and medical instruments	11,597	1,027,510	1,554,613	88,900	7,077,500	10,261,600	13.0	14.5	15.2
3842	Surgical appliances and supplies	7,931	697,442	1,174,739	86,600	7,163,100	11,127,600	9.2	9.7	10.6
3843	Dental equipment and supplies	1,078	77,419	135,006	12,900	890,100	1,364,700	8.4	8.7	9.9
3844	X-ray apparatus and tubes	2,895	202,729	495,358	12,600	1,495,800	2,576,500	23.0	13.6	19.2
3845	Electromedical equipment	6,029	568,703	902,952	33,600	3,659,800	5,603,800	17.9	15.5	16.1
385	Ophthalmic goods	7,861	480,831	633,762	28,000	1,625,600	2,274,700	28.1	29.6	27.9
3851	Ophthalmic goods	7,861	480,831	633,762	28,000	1,625,600	2,274,700	28.1	29.6	27.9
386	Photographic equipment and supplies	9,455	1,360,864	2,400,481	79,300	14,527,200	21,018,200	11.9	9.4	11.4
3861	Photographic equipment and supplies	9,455	1,360,864	2,400,481	79,300	14,527,200	21,018,200	11.9	9.4	11.4
387	Watches, clocks, watchcases, and parts	2,014	193,204	412,170	9,400	665,400	1,360,200	21.4	29.0	30.3
3873	Watches, clocks, watchcases, and parts	2,014	193,204	412,170	9,400	665,400	1,360,200	21.4	29.0	30.3
39	**Miscellaneous manufacturing industries**	26,087	1,929,276	3,553,235	386,300	20,095,600	37,205,200	6.8	9.6	9.6
391	Jewelry, silverware, and plated ware	1,138	54,025	109,874	49,100	2,590,700	5,754,200	2.3	2.1	1.9
3911	Jewelry, precious metal	E	(D)	(D)	35,600	1,869,400	4,180,100	(D)	(D)	(D)
3914	Silverware and plated ware	B	(D)	(D)	7,300	462,300	751,900	(D)	(D)	(D)
3915	Jewelers' materials and lapidary work	F	(D)	(D)	6,200	259,000	822,200	(D)	(D)	(D)
393	Musical instruments	1,545	79,949	130,485	11,700	547,700	872,900	13.2	14.6	14.9
3931	Musical instruments	1,545	79,949	130,485	11,700	547,700	872,900	13.2	14.6	14.9
394	Toys and sporting goods	10,644	899,270	1,659,072	98,600	5,919,600	11,043,600	10.8	15.2	15.0
3942	Dolls and stuffed toys	E	(D)	(D)	4,900	244,100	380,400	(D)	(D)	(D)
3944	Games, toys, and children's vehicles	H	(D)	(D)	27,900	1,911,800	3,622,900	(D)	(D)	(D)
3949	Sporting and athletic goods, nec	5,842	465,662	883,445	65,800	3,763,600	7,040,200	8.9	12.4	12.5
395	Pens, pencils, office, and art supplies	3,397	219,327	484,349	29,900	1,780,000	3,310,100	11.4	12.3	14.6
3951	Pens and mechanical pencils	1,584	98,523	239,000	9,600	682,400	1,205,800	16.5	14.4	19.8
3952	Lead pencils and art goods	G	(D)	(D)	5,300	407,200	745,900	(D)	(D)	(D)
3953	Marking devices	0	0	0	7,700	295,200	485,600	0	0	0
3955	Carbon paper and inked ribbons	E	(D)	(D)	7,300	395,200	872,700	(D)	(D)	(D)
396	Costume jewelry and notions	2,636	144,693	251,301	28,200	1,363,500	2,222,900	9.3	10.6	11.3
3961	Costume jewelry	0	0	0	19,200	892,400	1,415,700	0	0	0
3965	Fasteners, buttons, needles, and pins	2,636	144,693	251,301	9,000	471,100	807,200	29.3	30.7	31.1
399	Miscellaneous manufactures	6,727	532,012	918,154	168,800	7,894,100	14,001,600	4.0	6.7	6.6
3991	Brooms and brushes	E	(D)	(D)	14,000	731,000	1,221,800	(D)	(D)	(D)
3993	Signs and advertising specialties	G	(D)	(D)	69,500	2,613,800	4,826,500	(D)	(D)	(D)
3995	Burial caskets	0	0	0	10,200	579,800	1,093,500	0	0	0
3996	Hard surface floor coverings, nec	F	(D)	(D)	7,100	793,200	1,377,300	(D)	(D)	(D)
3999	Manufacturing industries, nec	4,248	360,031	560,730	68,000	3,176,200	5,482,400	6.2	11.3	10.2
	Administrative and auxiliary	200,064	n.a.	n.a.	1,260,900	n.a.	n.a.	15.9	n.a.	n.a.

(D) Suppressed to avoid disclosure of data of individual companies.

n.a. Not available.

1. The data shown in this column are rounded to the nearest 100 employees because they are rounded in this manner in the Census Bureau's *1990 Annual Survey of Manufactures: Statistics for Industry Groups and Industries*, from which they were taken.

2. The data shown in this column are rounded to the nearest $100,000 because they are rounded in this manner in the Census Bureau's *1990 Annual Survey of Manufactures: Statistics for Industry Groups and Industries*, from which they were taken.

3. On this line, the columns for number of employees cover both operating establishments and administrative and auxiliary establishments; the other columns cover operating establishments only.

NOTE.—Size ranges are given in employment cells that are suppressed. The size ranges are: A—0 to 19; B—20 to 99; C—100 to 249; E—250 to 499; F—500 to 999; G—1,000 to 2,499; H—2,500 to 4,999; I—5,000 to 9,999; J—10,000 to 24,999; K—25,000 to 49,999; L—50,000 to 99,999; M—100,000 or more.

SIC Standard Industrial Classification

Differences in Foreign-Owned U.S. Manufacturing Establishments by Country of Owner

By Ned G. Howenstine and Dale P. Shannon

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THIS ARTICLE is the second in a series of articles that examine the characteristics of foreign-owned U.S. manufacturing establishments. In a January 1994 article, a profile of foreign-owned U.S. manufacturing establishments, or plants, showed that these establishments pay higher wages and are more productive than U.S.-owned establishments. However, the differences were found to be largely attributable to differences in industry mix, plant scale, and occupational mix, rather than to foreign ownership per se.[1]

This article extends the earlier analysis by examining whether the industry mix and operating characteristics of foreign-owned U.S. manufacturing establishments vary by country of owner and by examining the reasons for these variations.[2] The analysis covers establishments owned by investors from six major investing countries—Canada, France, Germany, Japan, the Netherlands, and the United Kingdom—and is based on data for 1991, the most recent data available.

The following are the key findings of the analysis:

The U.S. manufacturing establishments of each of the major investing countries tend to be much larger, pay higher wages, and be more productive than the U.S.-owned establishments. However, these tendencies vary by country of owner, particularly in the cases of plant scale and productivity. Some of these variations are due to differences in industry mix—that is, to differences among countries in the industry distribution of their U.S. establishments—and some are due to differences within the same industries.

With respect to differences in industry mix:

- The establishments of all six countries tend to be concentrated in industries with large establishments. This tendency is strongest for Netherlands-, Japanese-, and German-owned establishments. When the effects of differences in industry mix are isolated from those of within-industry differences, these three countries' establishments were found to be over twice as large, on average, as U.S.-owned establishments.
- The establishments of all six countries tend to be concentrated in high-wage industries. This tendency is strongest for Japanese-owned establishments and weakest for British-owned establishments. When the effects of differences in industry mix are isolated from those of within-industry differences, the compensation per employee of Japanese-owned establishments is found to be 23 percent higher, on average, than that of U.S.-owned establishments. In contrast, the compensation per employee of British-owned establishments is only 3 percent higher.
- The establishments of all six countries show a strong tendency to be concentrated in high-labor-productivity industries. This tendency is strongest for Netherlands-owned establishments and weakest for French- and British-owned establishments. When the effects of differences in industry mix are isolated from those of within-industry differences, the value added per production-worker hour of Netherlands-owned establishments is found to be 60 percent higher than that of U.S.-owned establishments, and that of French- and British-owned establishments is about 20 percent higher.

1. See "Characteristics of Foreign-Owned U.S. Manufacturing Establishments," SURVEY OF CURRENT BUSINESS 74 (January 1994): 34–59.

2. For convenience, the establishments of U.S. affiliates of foreign companies are referred to in this article as "foreign-owned establishments," even though the percentage of foreign ownership in a U.S. affiliate may be as low as 10 percent. (A U.S. affiliate is a U.S. business enterprise that is owned 10 percent or more, directly or indirectly, by a foreign person.) The data analyzed here are not adjusted for percentage of foreign ownership. Thus, for example, the employment data include all employees of a given establishment, even though the foreign investor may own less than 100 percent of the affiliate to which the establishment belongs. However, most affiliates are majority owned (that is, they are owned more than 50 percent by direct investors); majority-owned affiliates accounted for 86 percent of the manufacturing employment of all U.S. affiliates in 1991.

With respect to differences within industries:

- The establishments of all six countries tend to be significantly larger than U.S.-owned establishments in the same industries. The differences range from 4.5 times larger for German-owned establishments to 3.5 times larger for British- and Netherlands-owned establishments.
- The establishments of five of the six countries differ little from U.S.-owned establishments in the degree to which their output results from their own production or from production originating elsewhere. However, Japanese-owned establishments rely more heavily on production originating elsewhere than the establishments of the other countries; that is, a relatively large share of the output of Japanese-owned establishments reflects materials purchased from others. The ratio of purchased materials to output for Japanese-owned establishments is 10 percent higher than that for U.S.-owned establishments in the same industries; the ratios for the establishments of each of the other five countries are all within 3 percent of the ratio for U.S.-owned establishments.
- The establishments of the six countries maintain larger materials inventories relative to value added than do U.S.-owned establishments in the same industries. For Japanese-owned establishments, the ratio of materials inventory to value added is 62 percent higher than that of U.S.-owned establishments. The ratios of the other foreign-owned establishments ranged from 35 percent higher for German-owned establishments to 14 percent higher for Canadian-owned establishments.
- Compensation rates within given industries vary among the establishments of the six investing countries largely because of differences in plant scale, capital intensity, and location. However, even after these factors are accounted for, wage rates of French-owned establishments are about 6 percent higher, and wage rates of British-owned establishments are about 4 percent lower, than those of the other foreign-owned establishments.
- Labor productivity varies significantly among the establishments of the six countries. Most of this variation appears to be attributable to differences in plant scale, capital intensity, employee skills, and location. Nevertheless, even after these factors are accounted for, value added per production-worker hour of British-owned establishments is about 5 percent higher, and that of Japanese-owned establishments is about 12 percent lower, than that of the other foreign-owned establishments.

These findings are based on 1991 data for a sample of the U.S. manufacturing establishments of the six major investing countries that was extracted from the Census Bureau's Annual Survey of Manufactures (ASM) through a joint project of the Bureau of Economic Analysis (BEA) and the Census Bureau.[3] The establishments in the sample accounted for over three-quarters of the manufacturing employment of all foreign-owned U.S. manufacturing establishments in 1991.

The remainder of this article consists of three sections and an appendix. The first section outlines the economic rationale for the variations in the characteristics of foreign-owned operations by country of owner. The second examines whether the variation in the concentration of foreign-owned establishments in industries with particular attributes depends on the country of the establishments' owners. The third investigates within-industry differences in the operating characteristics of foreign-owned establishments that have different countries of ownership. The appendix describes the data on foreign-owned establishments and presents the regression equations used in analyzing the variation in wage rates and labor productivity across countries.

Economic Rationale for Country-of-Ownership Differences

The questions of why foreign direct investment occurs and of why the characteristics of foreign-owned operations may vary by country of owner have been studied extensively. According to one widely accepted explanation of direct investment, foreign investors are more likely to be active in industries with particular attributes, and in a given host country, the characteristics of the plants owned by investors from one foreign country tend to differ from those owned by investors from other foreign countries. This explanation follows from the premise that foreign investors face inherent disadvantages when investing abroad: They are less familiar with the general business

3. For data covering the universe of foreign-owned U.S. manufacturing establishments, see *Foreign Direct Investment in the United States: Establishment Data for Manufacturing, 1991* (Washington, DC: U.S. Government Printing Office, September, 1994).

The data are classified by country of ultimate beneficial owner (UBO). The UBO is that person, proceeding up a U.S. affiliate's ownership chain, beginning with and including the foreign parent, that is not owned more than 50 percent by another person. The foreign parent is the first foreign person in the affiliate's ownership chain.

environment and frequently with the language in the host country than local entrepreneurs, and they must manage their foreign investments from a distance. To offset or overcome these disadvantages and to compete successfully abroad, the foreign firm making the investment must possess specific advantages—such as specialized knowledge, goodwill, advanced technology, marketing skills, or production-management or other organizational capabilities.[4]

Typically, these firm-specific advantages are not distributed evenly across industries and countries. As a result, the industries in which the investments are made are likely to depend on the country of the investor. In addition, because the investor must structure its foreign businesses in a way that will exploit these advantages, the characteristics of a business owned by a particular foreign country are likely to differ from those of businesses that are domestically owned or that are owned by other foreign countries.[5] For example, if a foreign-owned U.S. plant utilizes a technology developed by its foreign parent, that plant may require more capital or a different mix of employee skills than a U.S.-owned plant or a U.S. plant owned by a foreign investor from another country.

Although firm-specific advantages may lead to differences in operating characteristics, economic theory suggests that under competitive market conditions, payments for factors of production should be the same in foreign—and domestically owned businesses. For example, the wages paid to workers of the same skill level should be the same. However, in the United States, wage rates differ substantially across industries for the same occupations, and some analysts have suggested that these differences may be the result of less than perfectly competitive labor markets.[6] If labor markets are not fully competitive—for example, due to differences in unionization or to regionally segmented labor markets—businesses owned by investors from one foreign country may be able to pay different wages to workers of the same skill level than those paid by domestically owned businesses or businesses owned by investors from other foreign countries.

4. This theory was first developed by Stephen H. Hymer. See Stephen H. Hymer, *The International Operations of National Firms* (Cambridge, MA: MIT Press, 1976).

5. For a discussion of both the theoretical and empirical literature on how the variations in the characteristics of foreign-owned businesses depend on the country of the foreign owner, see John H. Dunning, *Multinational Enterprises and the Global Economy* (Wokingham, England: Addison-Wesley, 1993).

6. For this interpretation of wage-rate differentials, see Edward M. Graham and Paul R. Krugman, *Foreign Direct Investment in the United States* (Washington, DC: Institute for International Economics, 1995). According to other analysts, the difficulty of measuring some economic factors makes it appear as if unexplained wage differentials exist; see Lawrence F. Katz and Lawrence H. Summers, "Industry Rents: Evidence and Implications," *Brookings Papers on Economic Activity, Microeconomics 1989* (Washington, DC: *Brookings Institution, 1989)* and the comments by the discussants.

Table 1.—Selected Data for Foreign-Owned and All U.S. Establishments in Manufacturing, 1988–91

	Foreign-owned establishments				All U.S. establishments				Foreign-owned establishments as a percentage of all U.S. establishments			
	1988	1989	1990	1991	1988	1989	1990	1991	1988	1989	1990	1991
Number of establishments [1]	9,105	10,458	11,934	12,741	362,906	363,166	378,087	373,999	2.5	2.9	3.2	3.4
Value added (millions of dollars)	131,778	161,929	177,361	183,579	1,262,412	1,308,103	1,326,362	1,313,829	10.4	12.4	13.4	14.0
Value of shipments (millions of dollars)	303,362	371,912	417,539	423,136	2,682,606	2,793,015	2,873,502	2,826,207	11.3	13.3	14.5	15.0
Total employment (thousands)	1,543.4	1,815.3	2,004.2	2,004.6	19,148.3	19,040.8	18,840.3	18,061.9	8.1	9.5	10.6	11.1

1. Consists of operating establishments and administrative and auxiliary establishments. Because the number of manufacturing establishments is not shown in the Census Bureau's ASM publications, data on the number of U.S. manufacturing establishments are from the Census Bureau's annual *County Business Patterns.*

Table 2.—Plant Scale, Wage Rates, and Labor Productivity of Foreign- and U.S.-Owned Establishments in Manufacturing, 1988–91

	Foreign-owned establishments				U.S.-owned establishments				Ratio of foreign-owned establishments to U.S.-owned establishments (percent)			
	1988	1989	1990	1991	1988	1989	1990	1991	1988	1989	1990	1991
Plant scale:												
Value added per establishment (thousands of dollars) [1]	16,664	18,050	17,334	17,131	3,270	3,328	3,214	3,212	510	542	539	533
Wage rates:												
Production wages per hour (dollars)	11.84	12.08	12.57	12.88	10.57	10.81	11.04	11.33	112	112	114	114
Labor productivity:												
Value added per production-worker hour (dollars)	70	73	74	77	49	51	52	54	142	144	140	141
Output per production-worker hour (dollars) [2]	161	169	173	177	104	108	112	116	155	157	154	153

1. Plant scale is computed by dividing value added by the number of operating establishments.
2. Output is measured as shipments plus the change in finished goods and work-in-process inventories.

Industry-Mix Differences

Overall, foreign-owned manufacturing establishments tend to have larger plants, pay higher wages, and be more productive than U.S.-owned establishments. These differences persisted throughout the rapid expansion in foreign direct investment in U.S. manufacturing over the 1988–91 period for which data on foreign-owned manufacturing establishments are now available (tables 1 and 2). Some of these differences vary substantially by country of investor, and the variations reflect both industry-mix and within-industry differences. In this section, the industry mix of the establishments of each of the six major investing countries is compared with that of U.S.-owned establishments.[7]

Plant scale

As can be seen in table 3, the tendency to be concentrated in industries with larger-than-average plant scale (value added per establishment) varies considerably by country of owner.[8] The table shows, for each country, both an overall measure of the plant scale of foreign-owned establishments in relation to that of U.S.-owned establishments (first column) and a measure of the relative plant scale of foreign-owned establishments that isolates industry-mix effects (second column).[9] Specifically, the second column shows how the plant scale of foreign-owned establishments would compare with that of U.S.-owned establishments if in each industry, plant scale were the same for the two groups of establishments and if the only difference were in the distribution of establishments by industry.[10] Differences across countries in this measure indicate the extent to which country of ownership influences the concentration of foreign-owned establishments in industries with large plant scale.

As the second column indicates, Netherlands-, Japanese-, and German-owned establishments tend to be more concentrated in industries with large plant scale than the establishments of the other countries.[11] The concentration of British-owned establishments is the weakest, but it is still significant compared with that of U.S.-owned establishments.[12]

Wage rates

The concentration of foreign-owned U.S. establishments in industries with above-average compensation per employee tends to vary among the six countries, but the variation is not as large as that in plant scale. Japanese-owned establishments show the strongest tendency to operate in high-wage industries; when the effects of differences in industry mix are isolated from those of within-industry differences, compensation per employee of Japanese-owned establishments is found to be 23 percent higher than

7. The discussion in the remainder of the article is based on an analysis of data for 1991, but data for 1988–90 were also examined. The results for these years were consistent with those for 1991.

8. Table 3 covers 457 of the 459 four-digit Standard Industrial Classification (SIC) industries for which data on all U.S. manufacturing establishments are available from the ASM; data for 2 industries are suppressed in order to avoid the disclosure of data for individual establishments.

Value added, as measured by the Census Bureau's ASM, is the numerator for plant scale. It differs from BEA's national income and product accounts measure of gross product: Value added includes purchased services but excludes indirect taxes, and it reflects inventory change valued at book value rather than at replacement cost. In the ASM, value added is calculated as the value of shipments plus the net change in finished goods and work-in-process inventories less the cost of materials consumed.

Because the number of manufacturing establishments is not shown in the Census Bureau's ASM publications, average plant scale for U.S.-owned establishments was computed using the total value added from the ASM and the number of U.S. manufacturing establishments shown in the Census Bureau's *County Business Patterns, 1991: United States* (Washington DC: U.S. Government Printing Office, 1993).

Table 3.—Plant Scale of Foreign-Owned Establishments Relative to That of U.S.-Owned Establishments, 1991

Country of owner	Percent	
	Overall difference	Industry-mix differences
All countries	501	203
Canada	633	202
France	459	207
Germany	623	232
Netherlands	688	237
United Kingdom	407	174
Japan	535	234

NOTE.—This table was constructed using data for 457 four-digit SIC industries, including those that do, and do not, have foreign-owned establishments.

9. In the measures on the "all countries" line in the table, the plant scale of all foreign-owned establishments is compared with that of U.S.-owned establishments. These "all-countries" measures are provided for reference but are not discussed in the text.

10. The values in the second column can be expressed algebraically as

$$\left[\frac{P+\sum_i p_i(s_i^a - s_i)}{p}\right] * 100$$

where P is average plant scale for all industries, p_i is plant scale for industry i, and s_i is the share of the ith industry in the total number of establishments for all industries. Variables with the superscript a denote data for foreign-owned establishments.

11. Several of the industries with relatively large plants that have significant numbers of Netherlands-, Japanese-, and German-owned establishments are in chemicals manufacturing. For example, all three countries have numerous establishments in various industries in the industrial inorganic and organic chemicals groups (SIC 281 and 286) and in pharmaceutical preparations (SIC 2834).

12. A comparison of the values in the second column with those in the first column indicates that the overall measure of relative plant scale is both significantly larger for each country and more variable across countries than the measure that isolates industry-mix effects. The overall measure tends to be larger and more variable because it reflects not only the differences in industry mix, but also the differences *within* industries; see the section "Within-Industry Differences."

that of U.S.-owned establishments (second column of table 4). German-owned establishments are also heavily concentrated in high-wage industries. British-owned establishments have the weakest concentration in high-wage industries.[13]

Japanese- and German-owned establishments may be relatively heavily concentrated in industries that have high compensation per employee because these industries typically have an employee mix weighted toward skilled occupations. Japanese- and German-parent companies that invest abroad often have firm-specific advantages that are technology related—advantages that usually occur in industries employing relatively large numbers of skilled, and thus highly paid, workers.

Labor productivity

The concentration of foreign-owned establishments in industries with high labor productivity tends to vary significantly by country. Two measures of labor productivity—value added per production-worker hour and output per production-worker hour—show similar results (columns 2 and 4 of table 5).[14] According to both measures, the tendency to be concentrated in high-labor-productivity industries is strongest for Netherlands-owned establishments and weakest for French- and British-owned establishments.[15]

Within-Industry Differences

This section examines the tendency of the foreign-owned establishments of the individual countries to have different characteristics within industries. In addition to differences in plant scale, wage rates, and labor productivity, this section also examines differences within industries in the degree to which the output of the establishments results from their own production or from production originating elsewhere and differences in the size of their materials inventories relative to their production. As before, each country's manufacturing establishments are compared with U.S.-owned manufacturing establishments.

Plant scale

In the same industries, the establishments of all six countries tend to have significantly larger plants than U.S-owned establishments, and the within-industry differences vary by country (column 7 of table 6). For a given country, the within-industry difference is measured as the difference in plant scale that would have resulted if the industry distribution of the country's establishments were the same as that of U.S.-owned establishments and if the only difference between the two groups of establishments were in the

13. Among the high-wage industries in which the employment of Japanese-owned establishments are concentrated are blast furnaces and steel mills (SIC 3312), tires and inner tubes (SIC 3011), semiconductor and related devices (SIC 3674), motor vehicles and car bodies (SIC 3711), and household audio and video equipment (SIC 3651). Among the high-wage industries in which the employment of German-owned establishments are concentrated are a number in chemicals manufacturing, including pharmaceutical preparations (SIC 2834), noncellulosic organic fibers (SIC 2824), industrial organic chemicals, nec (SIC 2869), cyclic crudes and intermediates (SIC 2865), and plastic materials and resins (SIC 2821).

14. Output is measured as shipments plus the change in finished goods and work-in-process inventories. Productivity is measured using both output and value added because the two measures provide different advantages. For example, output, unlike value added, reflects the contribution of intermediate inputs to production; however, value added avoids the double counting that can occur in the output measure when one establishment provides materials used by other establishments in the same industry. For a discussion of the advantages and disadvantages of the two alternative measures of productivity, see William Gullickson, "Measurement of Productivity Growth in U.S. Manufacturing," *Monthly Labor Review* 118 (July 1995): 13–28.

Both value added per production-worker hour and output per production-worker hour measure productivity relative to a single input—labor. However, the variation in each measure may reflect differences in the use of other inputs, such as capital and intermediate inputs.

15. Netherlands-owned establishments are concentrated in a number of high-labor-productivity industries within chemicals manufacturing and in petroleum refining. The high labor productivity in these industries partly reflects their capital-intensive production processes.

Table 4.—Compensation per Employee of Foreign-Owned Establishments Relative to That of U.S.-Owned Establishments, 1991

Country of owner	Percent	
	Overall difference	Industry-mix differences
All countries	116	110
Canada	118	109
France	119	111
Germany	122	116
Netherlands	115	109
United Kingdom	108	103
Japan	121	123

NOTE.—This table was constructed using data for 457 four-digit SIC industries, including those that do, and do not, have foreign-owned establishments.

Table 5.—Labor Productivity of Foreign-Owned Establishments Relative to That of U.S.-Owned Establishments, 1991

Country of owner	Percent			
	Value added per hour		Output per hour	
	Overall difference	Industry-mix differences	Overall difference	Industry-mix differences
	(1)	(2)	(3)	(4)
All countries	142	126	153	133
Canada	162	127	158	140
France	134	116	138	120
Germany	155	134	144	129
Netherlands	179	160	226	203
United Kingdom	153	124	144	121
Japan	106	125	150	129

NOTE.—This table was constructed using data for 457 four-digit SIC industries, including those that do, and do not, have foreign-owned establishments.

plant scale in each industry.[16] These differences range from 4.5 times larger than U.S.-owned plants for German-owned establishments to 3.5 times larger for British- and Netherlands-owned establishments. The plants of the other three countries are roughly 4 times as large as those of U.S.-owned establishments.

As discussed in the January 1994 SURVEY article, large plants may be sought out by foreign investors because the income and other benefits that normally accrue to such plants tend to offset the inherent disadvantages foreign investors face when investing in the United States and when subsequently operating their U.S. businesses. For example, foreign investors may concentrate their investments in relatively large plants in order to spread the comparatively high fixed costs that they incur over a larger volume of output. Operating large plants may also benefit foreign investors by simplifying the organizational structure, reducing the number of units that must be managed, and lowering the number of local business environments with which they must become familiar.

Purchased materials

Establishments may differ in the degree to which their output results from their own production or from production originating elsewhere. The extent to which establishments rely on production originating elsewhere can be measured by the ratio of the value of purchased materials to the value of total output for each country's establishments. Based on this measure, the differences among the establishments of all the countries except Japan are relatively small (column 7 of table 7).[17] Japanese-owned establishments rely much more heavily on purchased materials than do the establishments of the other five countries.[18]

The heavy reliance on purchased materials by Japanese-owned establishments is consistent with the tendency of Japanese parent companies to rely on subcontracting in their production. It may also result because more Japanese-owned manufacturing plants are new, compared with

16. Using the notation from footnote 10, the values shown in column 7 of table 6 can be expressed algebraically as

$$\left[\frac{P+\sum_i s_i(p_i^a - p_i)}{p}\right] * 100.$$

In contrast to tables 3–5 in the section "Industry-Mix Differences," which cover industries both with and without foreign-owned establishments, tables 6–9 and 11–14 cover only industries with foreign-owned establishments. Differences in industry mix occur because the intensity of foreign investment varies across industries; thus, when relative investment intensities are analyzed, industries with no foreign investment must be accounted for in the same way as industries with extensive foreign investment. When within-industry differences are analyzed, only industries with foreign-owned establishments are included, because industries that do not have foreign-owned establishments provide no information about the within-industry differences between foreign- and U.S.-owned establishments. Because the number of industries in which the six countries have establishments varies, the number of industries in table 6 (column 1) varies by country.

In addition to within-industry differences (column 5), the overall differences in the table (column 4) reflect differences in industry mix and the interaction of industry mix and within-industry differences. Because table 6 covers only industries with foreign-owned establishments, the industry-mix effects implicit in table 6 differ from those shown in table 3.

17. Column 7 shows within-industry differences in the ratio of cost of materials to total output. The cost of materials consists of materials obtained from all suppliers, whether U.S. or foreign. The cost of materials consists of charges for materials consumed or put into production during the year, including freight charges and other charges incurred by the establishment in acquiring these materials. It also includes the cost of fuel consumed.

18. A recent analysis of BEA's enterprise data also found that Japanese-owned U.S. companies tend to rely on production originating elsewhere to a much greater extent than do other foreign-owned U.S. companies. William J. Zeile, "Imported Inputs and the Domestic Content of Production by Foreign-Owned Manufacturing Affiliates in the United States," in *Geography and Ownership as Bases for Economic Accounting*, ed. Robert E. Baldwin, Robert E. Lipsey, and J. David Richardson (Chicago: University of Chicago Press, forthcoming in 1996).

Table 6.—Plant Scale of Foreign- and U.S.-Owned Establishments, 1991

Country of owner	Number of industries [1]	Thousands of dollars				Percent	
		U.S.-owned establishments	Foreign-owned establishments	Differences		Foreign-owned establishments relative to U.S.-owned establishments	
				Overall difference	Within-industry differences [2]	Overall difference (Col.3/Col.2) × 100	Within-industry differences ((Col.2+Col.5)/Col.2) × 100
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All countries	410	3,373	19,209	15,835	9,431	569	380
Canada	173	3,129	23,976	20,847	8,987	766	387
France	160	3,977	15,957	11,980	11,756	401	396
Germany	174	2,914	24,053	21,139	10,328	825	454
Netherlands	98	3,811	25,753	21,942	9,989	676	362
United Kingdom	272	3,342	14,336	10,994	8,173	429	345
Japan	181	3,482	25,519	22,037	10,418	733	399

1. The all-countries line covers the four-digit SIC industries in which at least one of the six countries has establishments. The line for a country covers those four-digit SIC industries in which that country has establishments.

2. Measured as the difference in plant scale that would have resulted if the industry distribution of foreign-owned establishments were the same as that of U.S.-owned establishments and if the only differences between the two groups of establishments were in the plant scale in each industry.

NOTE.—Plant scale is measured as value added per establishment.

those of the other five countries. As shown in the following tabulation, outlays to establish new businesses in manufacturing as a share of total outlays to acquire existing businesses and establish new businesses in manufacturing was much higher for Japan than for any of the other five countries:[19]

Country of investor	Percent
Canada	4
France	2
Germany	3
Netherlands	6
United Kingdom	2
Japan	14

When a newly built plant begins operations and its workforce is relatively inexperienced, activities in the plant many cover only a few production stages; as the plant matures, it may be able to substitute its own production for production originating elsewhere. In addition, because foreign owners may be unfamiliar with the U.S. business environment when they first set up their U.S. plants, newly built foreign-owned plants may be more likely to rely on materials purchased from their foreign owners.[20]

Inventories

To some extent, the variation in the use of purchased materials is paralleled by a variation in the size of materials inventories relative to value added. The ratio of materials inventories to value added for Japanese-owned establishments is 62 percent higher than that for U.S.-owned establishments within the same industries, by far the largest difference for any country (column 7 of table 8). However, the establishments of the other five countries also maintained relatively large inventories of materials; the ratio ranged from 35 percent higher for German-owned establishments to 14 percent higher for Canadian-owned establishments.

The finding that Japanese-owned establishments have unusually large materials inventories is somewhat surprising, given Japanese companies' reputation for keeping inventories at a minimum through their "just-in-time" system of deliveries from suppliers. One reason for the large inventories may be the particularly heavy reliance by these establishments on purchased materials, much of which are imported.[21] Because these materials typically travel over longer distances and by different modes of transportation than materials purchased domestically, imported materials may be shipped less often and in larger quantities than domestically purchased materials. Thus, Japanese-owned plants that rely on imported materials may have to carry comparatively large inventories in order to ensure that their supply is not interrupted. The differences among the establishments of the other five countries in their reliance on imported materials also appear to partly explain the differences in the relative size of their materials inventories.

19. The data in the tabulation, which are from BEA's survey of U.S. businesses acquired or established by foreign direct investors, are averages for 1987–91 and cover only the plants built when a new U.S. business enterprise (a new U.S. affiliate) is created. New plants built by existing U.S. affiliates and plant expansions by existing U.S. affiliates are not covered.

20. Numerous studies have shown that newly built foreign plants of multinational companies tend to have large imports from their parent companies. One of the first studies was Raymond R. Vernon, "International Investment and International Trade in the Product Cycle," *Quarterly Journal of Economics* 80 (May 1966): 190–207.

21. According to Zeile, imported materials account for a large portion of the purchased materials of the Japanese-owned U.S. affiliates; see "Imported Inputs and the Domestic Content of Production."

Table 7.—Ratio of the Cost of Purchased Materials to Output of Foreign- and U.S.-Owned Establishments, 1991

Country of owner	Number of industries [1]	Percent					
		U.S.-owned establishments	Foreign-owned establishments	Differences		Foreign-owned establishments relative to U.S.-owned establishments	
				Overall difference	Within-industry differences [2]	Overall difference (Col.3/Col.2) × 100	Within-industry differences ((Col.2+Col.5)/Col.2) × 100
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All countries	410	53.4	55.3	1.9	0.9	104	102
Canada	173	54.4	51.2	–3.2	–1.3	94	98
France	160	55.5	53.5	–2.0	1.5	96	103
Germany	174	49.8	49.2	–.7	–1.2	99	98
Netherlands	98	48.1	47.3	–.8	–1.5	98	97
United Kingdom	272	52.6	49.6	–3.0	–.8	94	99
Japan	181	50.9	64.8	13.8	5.2	127	110

1. The all-countries line covers the four-digit SIC industries in which at least one of the six countries has establishments. The line for a country covers those four-digit SIC industries in which that country has establishments.

2. Measured as the difference in the ratio of the cost of purchased materials to output that would have resulted if the industry distribution of the output of foreign-owned establishments were the same as that of U.S.-owned establishments and if the only differences between the two groups of establishments were in the ratio of the cost of purchased materials to output in each industry.

Wage rates

Compensation rates vary considerably among establishments of the major investing countries; an analysis shows that these variations appear to largely result from factors typically associated with variations in compensation rates, such as location and plant scale. When these factors are controlled for, only British- and French-owned establishments appear to have compensation rates that differ from those of the other foreign-owned establishments in the same industries.

Although the within-industry variation in compensation per employee among the establishments of the six countries is smaller than that for any of the characteristics examined so far, it is significant. Compared with U.S.-owned establishments in the same industries, the differences in compensation per employee ranged from 9 percent higher for French-owned establishments to 1 percent lower for Japanese-owned establishments (table 9, column 7).[22]

22. For other studies of compensation rates of foreign-owned U.S. manufacturing establishments, using the BEA-Census Bureau data, see Robert E. Lipsey, "Foreign-Owned Firms and U.S. Wages," *National Bureau of Economic Research Working Paper No. 4927* (November 1994) and J. Bradford Jensen and Mark Doms, "A Comparison Between Operating Characteristics of Domestic and Foreign Owned Manufacturing Establishments in the United States," in *Geography and Ownership as Bases for Economic Accounting.*

Using 1987 data, Lipsey found a somewhat different pattern, particularly with regard to Japanese-owned establishments, than that found in this article. He found that the within-industry compensation rates of the Japanese-owned establishments in manufacturing are higher than those of U.S.-owned establishments, while this article finds that Japanese-owned establishments' compensation rates are slightly lower. The disparity may reflect differences in the level of industry detail used. Lipsey used published data on foreign-owned establishments, generally at the two-digit SIC level, presumably to avoid the sometimes high degree of suppression in the published data at finer levels of detail. In contrast, the analysis in this article is based largely upon data at the four-digit SIC level. Thus, Lipsey's finding may actually reflect industry-mix effects; specifically, in many two-digit industries, Japanese-owned establishments are concentrated in the four-digit industries with the highest compensation rates.

Doms and Jensen, in their analysis based on 1987 data, controlled for differences in industry mix and several other factors and found that wage rates of foreign-owned establishments vary by country of owner. They also found that Japanese- and Australian-owned establishments pay lower production-worker wages than other foreign-owned establishments.

Table 8.—Ratio of Materials Inventory to Value Added of Foreign- and U.S.-Owned Establishments, 1991

Country of owner	Number of industries [1]	Percent					
		U.S.-owned establishments	Foreign-owned establishments	Differences		Foreign-owned establishments relative to U.S.-owned establishments	
				Overall difference	Within-industry differences [2]	Overall difference (Col.3/Col.2) × 100	Within-industry differences ((Col.2+Col.5)/Col.2) × 100
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All countries	410	8.9	9.8	0.8	2.1	109	123
Canada	173	9.2	7.3	–1.9	1.3	79	114
France	160	8.9	8.2	–.7	1.7	92	119
Germany	174	9.1	10.0	.9	3.2	110	135
Netherlands	98	8.3	7.2	–1.1	1.3	86	116
United Kingdom	272	8.5	8.8	.3	2.3	103	127
Japan	181	8.2	14.2	6.0	5.1	172	162

1. The all-countries line covers the four-digit SIC industries in which at least one of the six countries has establishments. The line for a country covers those four-digit SIC industries in which that country has establishments.
2. Measured as the difference in the ratio of materials inventory to value added that would have resulted if the industry distribution of the value added of foreign-owned establishments were the same as that of U.S.-owned establishments and if the only differences between the two groups of establishments were in the ratios of materials inventory to value added in each industry.

Table 9.—Compensation per Employee of Foreign- and U.S.-Owned Establishments, 1991

Country of owner	Number of industries [1]	Dollars				Percent	
		U.S.-owned establishments	Foreign-owned establishments	Differences		Foreign-owned establishments relative to U.S.-owned establishments	
				Overall difference	Within-industry differences [2]	Overall difference (Col.3/Col.2) × 100	Within-industry differences ((Col.2+Col.5)/Col.2) × 100
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All countries	410	34,541	39,754	5,214	1,401	115	104
Canada	173	34,804	40,654	5,850	1,679	117	105
France	160	36,403	41,544	5,141	3,374	114	109
Germany	174	34,376	42,228	7,852	2,642	123	108
Netherlands	98	36,787	38,605	1,818	1,821	105	105
United Kingdom	272	35,202	37,350	2,148	684	106	102
Japan	181	36,852	41,209	4,356	–551	112	99

1. The all-countries line covers the four-digit SIC industries in which at least one of the six countries has establishments. The line for a country covers those four-digit SIC industries in which that country has establishments.
2. Measured as the difference in compensation per employee that would have resulted if the industry distribution of the employment of foreign-owned establishments were the same as that of U.S.-owned establishments and if the only differences between the two groups of establishments were in compensation per employee in each industry.

The following analysis examines the extent to which the variation in within-industry compensation rates is attributable to differences in occupational mix, location, plant scale, and capital intensity. Because data limitations make it impossible to use the compensation-per-employee measure for certain aspects of the analysis, this analysis also uses two alternative measures of compensation rates—payroll per employee and hourly wage rates of production workers.[23]

Occupational mix.—Compensation rates may vary because the establishments of the six countries have different occupational mixes. Although detailed occupational data are not available from the ASM, a breakdown of total employment and total payroll between two broad groups—production workers and nonproduction workers—is available.[24] Nonproduction workers are usually considered to be higher skilled, on average, than production workers. A comparison of payroll per employee for the two groups supports this view: For both all U.S. establishments and foreign-owned establishments, payroll per employee of nonproduction workers is significantly higher than that of production workers for total manufacturing and for each two-digit SIC manufacturing industry (table 10).[25]

The role of occupational mix in explaining wage differences can be examined by comparing variations in wages of production workers with variations in compensation per employee of all workers. This comparison indicates whether variation by country in the ratio of nonproduction workers to production workers is a source of inter-country differences in overall rates of pay.

Across the establishments of the six countries, the range of within-industry differences is somewhat narrower for hourly wage rates of production workers than it is for compensation per employee of all workers (column 7 of table 11 and column 7 of table 9, respectively), suggesting that differences in occupational mix may explain some of the variation in compensation rates. However, in some cases, the differences in the hourly wage rates of production workers are wider than those in the compensation per employee of all workers.[26]

23. Compensation covers benefits as well as wages and salaries; payroll covers only wages and salaries.

24. Production workers are workers—up through the line-supervisor level—at an operating establishment who are engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for a plant's own use (power plant, for example), record keeping, and other services closely associated with these production operations at the establishment.

Nonproduction workers are workers engaged in factory supervision above the line-supervisor level and workers engaged in the following activities: Sales (including drivers/salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing, clerical and routine office functions, executive, purchasing, financial, legal, personnel (including cafeteria and medical personnel), professional, and technical.

25. Payroll per employee rather than compensation per employee is shown in table 10 because data on employee benefits by type of worker are not available from the ASM.

Educational attainment, which is an indicator of employee skill level, is also higher for nonproduction workers than for production workers; see Eli Berman, John Bound, and Zvi Griliches, "Changes in the Demand for Skilled Labor Within U.S Manufacturing Industries: Evidence from the Annual Survey of Manufacturing," *Quarterly Journal of Economics* 109 (May 1994): 367–97.

26. Lipsey found that differences in occupational mix played a role in explaining why compensation rates are higher in foreign-owned establishments than in U.S.-owned establishments only for German-owned establishments, and even in this case, occupational mix only explained part of the difference. See "Foreign-Owned Firms and U.S. Wages."

Table 10.—Payroll per Employee of Production and Nonproduction Workers of All U.S. Establishments and Foreign-Owned Establishments, 1991

[Dollars]

SIC code	Industry	All U.S. establishments		Foreign-owned establishments	
		Production workers	Nonproduction workers	Production workers	Nonproduction workers
	Manufacturing	23,139	38,002	26,220	42,431
20	Food and kindred products	20,346	31,638	23,086	34,597
21	Tobacco products	34,829	46,345	(D)	(D)
22	Textile mill products	16,725	33,348	18,768	38,639
23	Apparel and other textile products	12,324	28,304	14,353	28,196
24	Lumber and wood products	18,119	30,737	19,790	31,828
25	Furniture and fixtures	16,961	33,340	(D)	(D)
26	Paper and allied products	28,023	41,814	29,698	45,135
27	Printing and publishing	21,878	30,706	25,309	31,946
28	Chemicals and allied products	31,013	43,874	33,281	46,739
29	Petroleum and coal products	37,989	48,647	39,695	51,284
30	Rubber and miscellaneous plastics products	20,567	36,290	25,352	39,110
31	Leather and leather products	13,402	32,760	15,576	28,978
32	Stone, clay, and glass products	24,100	34,250	26,752	37,261
33	Primary metal industries	29,390	40,245	32,167	41,968
34	Fabricated metal products	23,694	36,462	26,374	39,169
35	Industrial machinery and equipment	25,757	39,578	25,827	41,209
36	Electronic and other electric equipment	22,299	40,714	22,529	40,580
37	Transportation equipment	32,792	44,072	28,350	41,502
38	Instruments and related products	25,842	44,759	24,032	42,742
39	Miscellaneous manufacturing industries	16,899	32,613	19,960	36,385

D Suppressed to avoid disclosure of data of individual companies.
SIC Standard industrial classification

Location.—Wage rates may also vary by country of owner because the establishments of one country may be more (or less) concentrated than the establishments of other countries in geographic areas where wages are relatively high (or low). However, even after controlling for differences in distributions of employment across States (see column 2 of table 12), payroll per employee still varies considerably.[27] This variation may exist partly because, as discussed earlier, the establishments of the six countries tend to be concentrated to different degrees in high-wage industries. Furthermore, this concentration may not be uniformly distributed across States. Controlling for differences in State-by-industry distributions (see column 3 of table 12) significantly narrows the differences in payroll per employee across the establishments of the six countries.[28]

Other factors.—In addition to occupational mix and location, other factors may influence compensation rates. One is the extent to which the employees of the establishments are unionized. Data are not available from the ASM on the number of employees who are in unions, but such data are available from BEA's 1992 benchmark survey of foreign direct investment in the United States.[29] Because the benchmark survey data are collected on an enterprise basis, they are not directly comparable with the establishment data from the ASM. However, the enterprise data do suggest that there is little relationship between unionization rates and the variation in compensation rates of the establishments of different countries, once differences in industry mix are taken into account.

The variation in compensation rates may also reflect differences in plant scale and capital intensity. In the January 1994 SURVEY article, it was found that at the all-countries level, differences in compensation rates between foreign- and U.S.-owned establishments are significantly correlated with differences in plant scale. Because the size of foreign-owned plants depends on the country of owner, the variation in compensation rates may partly reflect differences in scale. Capital intensity could influence compensation rates if higher skilled labor tends to be required in plants that use large amounts of capital. In addition, if skill levels are higher in capital-intensive plants, employee training may be relatively expensive and the plants may pay higher wages

27. Payroll per employee rather than hourly wage rates or compensation per employee was used in this section because the all-U.S. data source for these comparisons, *County Business Patterns, 1991*, provides data only on total payroll and employment.

For the establishments of each country, the relative payroll-per-employee measure in column 2 of the table is smaller than that in column 1, indicating that each country's establishments tend to be more concentrated in high-wage States than the U.S.-owned establishments.

28. For the establishments of each country, the relative payroll-per-employee measure in column 3 of the table is smaller than that in column 2, indicating that each country's establishments tend to be concentrated in the higher-wage industries within individual States.

The conclusions based on the measures shown in table 12 are subject to two important qualifications. First, in constructing column 3, the differences in the industry distributions were controlled for by using data at the three-digit SIC level, because all-U.S. data on payroll per employee within States is not available at the four-digit level. Rough calculations indicate that if four-digit, rather than three-digit, industry data had been used, the relative payroll-per-employee measure shown for Japanese-owned establishments would probably have been less than 100 percent instead of the 101 percent shown.

Second, the boundaries of labor markets may not coincide with State boundaries. Wage rates in one part of a State may be higher than those in another part of the State (for example, wage rates may be higher in urban areas than in rural areas). As a consequence, State data may not always gauge accurately whether foreign-owned establishments have a tendency to be located in areas where wages are particularly high (or low).

29. See U.S. Department of Commerce, Bureau of Economic Analysis, *Foreign Direct Investment in the United States: 1992 Benchmark Survey, Final Results* (Washington, DC: U.S. Government Printing Office, September 1995).

Table 11.—Production-Worker Wages per Hour of Foreign- and U.S.-Owned Establishments, 1991

Country of owner	Number of industries [1]	Dollars				Percent	
		U.S.-owned establishments	Foreign-owned establishments	Differences		Foreign-owned establishments relative to U.S.-owned establishments	
				Overall difference	Within-industry differences [2]	Overall difference (Col.3/Col.2) × 100	Within-industry differences ((Col.2+Col.5)/Col.2) × 100
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All countries	410	11.37	12.87	1.50	0.31	113	103
Canada	173	11.52	13.46	1.95	.11	117	101
France	160	11.66	13.36	1.69	.80	115	107
Germany	174	11.43	13.30	1.87	.78	116	107
Netherlands	98	11.61	12.00	.38	(†)	103	100
United Kingdom	272	11.53	11.87	.34	.26	103	102
Japan	181	12.13	13.74	1.61	–.17	113	99

† Less than 0.005(±).

1. The all-countries line covers the four-digit SIC industries in which at least one of the six countries has establishments. The line for a country covers those four-digit SIC industries in which that country has establishments.

2. Measured as the difference in production-worker wages per hour that would have resulted if the industry distribution of the production-worker hours of foreign-owned establishments were the same as that of U.S.-owned establishments and if the only differences between the two groups of establishments were in production-worker wages per hour in each industry.

to reduce employee turnover and the associated training costs.

Combined effects.—The prior analysis suggests that variation in compensation rates among the six countries' establishments is associated with variations in industry composition, occupational mix, location, plant scale, or capital intensity. In order to determine whether differences in compensation rates remain once these factors are simultaneously taken into account, multiple regression equations were estimated in which the dependent variable was hourly wage rates of production workers, and the independent variables were plant scale, capital intensity, control variables for four-digit SIC industry and for location (State), and dummy variables to indicate residual country-of-ownership differences.[30] Six equations—one for each country—were estimated. In each case, the observations were the individual establishments of the six countries. In the equation for each country, the variable for country of owner was used to test whether the establishments of that country differed from the establishments of the other five, once the industry and State controls and the other independent variables were taken into account.[31] Key findings of this analysis are discussed below; the estimated equations are shown in the appendix.

The regression analysis indicates that among the establishments of the six countries, the variation in hourly wage rates largely results from differences in industry mix, location, plant scale, and capital intensity. However, even after these factors are taken into account, the wage rates of French-owned establishments are about 6 percent higher, and those of British-owned establishment are about 4 percent lower, than those of the other foreign-owned establishments.

These results are based on tests that assume that the relationship between hourly wage rates and both plant scale and capital intensity is the same for the establishments of each country (that is, that the regression coefficient for each variable is the same for each country). In order to check whether the effect of a particular country's ownership may reflect differences in the relationship between the other independent variables and country of ownership (slope effects) rather than any overall country-of-ownership effect (intercept effect), a second set of regression equations was estimated in which the relationship between wage rates and both plant scale and capital intensity can vary depending on the country of owner.

The results from the second set of equations indicate that the relatively high production-worker wage rates in French-owned establishments are due to a stronger positive relationship between wage rates and capital intensity for those establishments than for the establishments of the other five countries. Further, French-owned establishments with the same capital intensity as the establishments owned by the other countries tend to have higher production-worker wage rates than the other establishments and the higher the capital intensity, the larger the gap between the wage rates of French-owned establishments and those of the other establishments.

The reasons for the relatively high compensation rates for French-owned establishments and the relatively low compensation rates of British-owned establishments are unclear. The differences in the compensation rates may reflect differences in the firm-specific advantages that enable foreign companies to invest successfully in the United States. For example, the advantages of parent companies in one foreign country may stem from production-management or other organizational capabilities rather than from the possession of advanced technology. If so, compensation rates of that country's establishments

30. The sample data used to estimate the regression equations differ somewhat in coverage from those used in the analysis of the preceding sections. It should also be noted that, in the regressions, capital intensity was measured indirectly using a proxy variable, because the data needed to measure it directly are not available. See the appendix for a discussion of how the sample was selected and a description of the capital intensity variable.

31. An alternative to estimating a separate regression equation for each country is to estimate a single equation that includes country-of-ownership variables for five of the six countries, with the sixth country serving as a the base. In general, the results from this alternative method, which are presented in the appendix, are consistent with those from the separate regression equations.

Table 12.—Payroll per Employee: Foreign-Owned Establishments Compared With U.S.-Owned Establishments, 1991

[Percent]

Country of owner	Overall	After adjustment for differences in distributions	
		Across States	Across States and industries
	(1)	(2)	(3)
Canada	119	107	98
France	114	109	98
Germany	120	115	101
Netherlands	118	104	102
United Kingdom	107	101	98
Japan	114	106	101

NOTE.—Column 1 shows payroll per employee of foreign-owned establishments relative to that of U.S.-owned establishments before controlling for differences in distributions across States. Column 2 shows the relative payroll-per-employee measure that would result if the distributions of the foreign-owned establishments across States were the same as that of the U.S.-owned establishments and if the only difference between the two groups of establishments were in payroll per employee within each State. Column 3 was constructed by controlling for differences between foreign- and U.S.-owned establishments in distributions both across States and across three-digit SIC industries within States. Specifically, column 3 shows the relative payroll-per-employee measure that would result if the distributions of the foreign-owned establishments across industries within individual States were the same as those of U.S.-owned establishments and if the only difference between the two groups of establishments were in payroll per employee within each State-industry cell.

may be relatively low, because these establishments are less likely than those of other countries to use technologically complex production processes that require relatively large numbers of high-skill, high-wage production workers. Variations in the skill mix of production workers were not controlled for in this analysis, and they may be the source of some of the differences in the wage rates of foreign-owned establishments by country of owner.

Labor productivity

The variation in labor productivity across the establishments of the six countries appears to be largely attributable to differences among the establishments in factors such as plant scale and employee skill level. However, some evidence suggests that once these factors are taken into account, the labor productivity of British-owned establishments tends to be somewhat higher, and the labor productivity of Japanese-owned establishments somewhat lower, than that of the other foreign-owned establishments.

Whether labor productivity is measured as value added per production-worker hour or as output per production-worker hour, the labor productivity of the establishments of the six countries varies significantly from country to country, but each country's establishments have higher labor productivity than U.S.-owned establishments in the same industries.[32] Using the value-added measure, the labor productivity of French- and Netherlands-owned establishments is particularly high relative to that of U.S.-owned establishments—40 percent and 38 percent higher, respectively (table 13, column 7). In contrast, the labor productivity of Japanese-owned establishments is only 7 percent higher. Using the output measure, the differences in labor productivity range from 43 percent higher for Netherlands-owned establishments to 8 percent higher for Canadian-owned establishments (table 14 column 7).

If the within-industry differences in labor productivity for the establishments of the six countries are ranked, both measures of productivity yield similar rankings, except that the Japanese-owned establishments rank sixth on the basis of the value-added measure and third on the basis of the output measure. This disparity may reflect a tendency for the operations of Japanese-owned establishments to be structured differently from those of the establishments of the other countries. That structural differences exist is suggested by the earlier finding that the ratio of purchased materials to output tends to be much larger for Japanese-owned establishments than for the other establishments.

The remainder of this section evaluates the extent to which variation in labor productivity by country of owner reflects differences among the establishments in factors that often influence labor productivity—plant scale, capital intensity, and employee skill levels. In the January 1994 SURVEY article, it was found that at the all-countries level, the labor productivity of foreign-owned establishments differed significantly from that of U.S.-owned establishments and that most of this difference was attributable to differences in industry mix, plant scale, capital intensity, and employee skill level. In order to determine if this finding holds across countries, multiple regression equations that simultaneously take these

32. The value-added and the output measures each have unique advantages as measures of labor productivity (see footnote 14).

Table 13.—Value Added per Production-Worker Hour of Foreign- and U.S.-Owned Establishments, 1991

Country of owner	Number of industries [1]	Dollars				Percent	
		U.S.-owned establishments	Foreign-owned establishments	Differences		Foreign-owned establishments relative to U.S.-owned establishments	
				Overall difference	Within-industry differences [2]	Overall difference (Col.3/Col.2) × 100	Within-industry differences ((Col.2+Col.5)/Col.2) × 100
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All countries	410	53	80	27	7	150	114
Canada	173	54	91	37	8	169	114
France	160	59	74	16	24	126	140
Germany	174	50	87	37	15	174	130
Netherlands	98	63	109	46	24	173	138
United Kingdom	272	56	84	27	13	149	124
Japan	181	58	65	7	4	113	107

1. The all-countries line covers the four-digit SIC industries in which at least one of the six countries has establishments. The line for a country covers those four-digit SIC industries in which that country has establishments.

2. Measured as the difference in value added per production-worker hour that would have resulted if the industry distribution of the production-worker hours of foreign-owned establishments were the same as that of U.S.-owned establishments and if the only differences between the two groups of establishments were in value added per production-worker hour in each industry.

factors into account were estimated for each country. In the regressions, the dependent variable was labor productivity and the independent variables were plant scale, capital intensity, employee skill level, control variables for four-digit SIC industry and for State, and dummy variables to indicate residual country-of-ownership differences. Separate equations were estimated for the value-added and the output measures of labor productivity. In addition, because an establishment's output embodies purchased materials as well as its own value added, a measure of the use of purchased materials relative to total output was included as an independent variable in the equations using the output measure.

When the value-added measure was used as the dependent variable, the regression results suggest that most of the differences in labor productivity across the establishments of the six countries are attributable to differences in plant scale, capital intensity, employee skill level, industry, and location. However, even after these factors are taken into account, the labor productivity of British-owned establishments is about 5 percent higher, and the labor productivity of Japanese-owned establishments about 12 percent lower, than that of the establishments of the other countries.

These results were based on regressions in which it was assumed that the relationships between labor productivity and plant scale, capital intensity, and employee skill level are the same for the establishments of each country. A second set of equations was estimated in which this assumption was relaxed. The results of these regressions suggest that the relatively high labor productivity of British-owned establishments reflects a stronger positive relationship between labor productivity and capital intensity for those establishments than for the establishments of the other five countries. Further, British-owned establishments with the same capital intensity as the other establishments tend to have higher labor productivity than the other establishments and the higher the capital intensity, the larger the gap between their productivity and that of the other establishments.

When the output measure was used as the dependent variable, no systematic differences in productivity were found across the establishments of the six countries once differences in industry mix, location, use of purchased materials, plant scale, capital intensity, and employee skill were taken into account.

These results are based on regression equations in which it was assumed that the relationships between labor productivity and the use of purchased materials, plant scale, capital intensity, and employee skill level are the same for the establishments of each country. A second set of regression equations was estimated in which this assumption was relaxed. Like the results of the value-added regressions, the results of these regressions suggest a stronger positive relationship between labor productivity and capital intensity for British-owned establishments than for the establishments of the other countries. These results also suggest that the positive relationship between the use of purchased materials and labor productivity is stronger for Japanese-owned establishments than for the other establishments. In contrast, the results suggest that for Canadian-owned establishments, high labor productivity is associated with lower, rather than higher, use of purchased materials.

A number of factors that were not taken into account in this analysis may explain the differ-

Table 14.—Output per Production-Worker Hour of Foreign- and U.S.-Owned Establishments, 1991

Country of owner	Number of industries [1]	Dollars				Percent	
		U.S.-owned establishments	Foreign-owned establishments	Differences		Foreign-owned establishments relative to U.S.-owned establishments	
				Overall difference	Within-industry differences [2]	Overall difference (Col.3/Col.2) × 100	Within-industry differences ((Col.2+Col.5)/Col.2) × 100
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All countries	410	115	182	67	20	158	117
Canada	173	119	188	69	10	158	108
France	160	133	160	26	57	120	143
Germany	174	100	165	65	24	165	124
Netherlands	98	122	210	88	40	172	133
United Kingdom	272	120	168	48	25	140	121
Japan	181	119	194	75	39	163	133

1. The all-countries line covers the four-digit SIC industries in which at least one of the six countries has establishments. The line for a country covers those four-digit SIC industries in which that country has establishments.

2. Measured as the difference in output per production-worker hour that would have resulted if the industry distribution of the production-worker hours of foreign-owned establishments were the same as that of U.S.-owned establishments and if the only differences between the two groups of establishments were in output per production-worker hour in each industry.

ences in the labor productivity of British- and Japanese-owned establishments. For example, the productivity, like the wage rates, of foreign-owned establishments may be influenced by the firm-specific advantages of the establishments' parent companies.

The variation in labor productivity may also reflect a variation in the average age of the foreign-owned establishments by country of owner. Many Japanese-owned establishments are relatively new. Productivity in new plants may be relatively low because these plants often operate at less-than-full capacity and because they may incur training and other costs that are not incurred in older plants.[33]

Appendix

This appendix consists of a description of the data on foreign-owned establishments and a discussion of the estimated regression equations and of the alternative regression method that were used in the analysis of wage rates and labor productivity.

The data

The data for foreign-owned establishments were obtained from the Census Bureau's Annual Survey of Manufactures (ASM) through a project that linked BEA enterprise, or company, data on foreign direct investment in the United States with Census Bureau establishment, or plant, data for all U.S. companies. Data were obtained for most of the ASM items for the universe of foreign-owned manufacturing establishments.

The panel of foreign-owned establishments examined in this article covers a subset of the universe of such establishments. The panel includes only the establishments owned by foreign investors from the six countries selected for study. It excludes administrative and auxiliary establishments because the data available by detailed industry cover only operating establishments, and it excludes establishments for which data were imputed (estimated).

Published ASM statistics cover all manufacturing establishments in the United States. These statistics are estimates derived by combining the data for establishments in the ASM sample with the data estimated for establishments not in the sample. The foreign-owned establishments not in the sample were excluded from the panel because the procedure used to estimate data for them employs industry-level ratios that do not differentiate between foreign- and U.S.-owned establishments and therefore tends to mask the differences between the two groups of establishments. The panel also excludes extreme outliers. These outliers consist of a few foreign-owned establishments whose data appear to be erroneous or for which temporary circumstances peculiar to the establishments resulted in unusual values and of a few establishments that appear to have been engaged in activities that are not typical of other foreign- and U.S.-owned establishments in the same four-digit industry.[34]

Even after these exclusions, the panel includes 84 percent of all foreign-owned manufacturing establishments. It also accounts for a large portion of the universe totals for both value added and employment—88 percent and 85 percent, respectively. Among the six major investing countries, value added accounted for by the panel ranged from 79 percent of the universe total for Japanese-owned establishments to 91 percent of the total for Canadian-, Netherlands-, and British-owned establishments.

The panel of establishments used to estimate the regression equations differs slightly from that described here; the differences are noted in the next section.

Regression analysis

As indicated in the main text of the article, several multiple regression equations were estimated to analyze the variations in wage rates and in labor productivity among the establishments of the six countries. The regressions for wage rates are shown in tables 15 and 16, and those for labor productivity, in tables 17–20. The main text discusses the variables used in the regressions and key results.

Two sets of regressions were run for wage rates, and two were run for each of the labor productivity measures. The first set of regressions is based on the assumption that the relationships between the independent variables and the dependent variable is the same for the establishments of each country (that is, that the regression

33. Doms and Jensen used data from several Census Bureau economic censuses to create a proxy for plant age and found that labor productivity was relatively low in Japanese-owned plants even after plant age is taken into account. They also found that the productivity of foreign-owned plants is generally higher than that of U.S.-owned plants but lower than that of U.S. plants of U.S. multinational companies. See "A Comparison Between Operating Characteristics of Domestic and Foreign Owned Manufacturing Establishments."

34. In "Characteristics of Foreign-Owned U.S. Manufacturing Establishments," outliers were controlled for by limiting the analysis to only those four-digit industries with six or more foreign-owned establishments. That approach was rejected for this study because of the relatively small number of four-digit industries in which individual investing countries own six or more establishments.

coefficient for each variable is the same for each country). The second set of regressions relaxes this assumption; that is, the second set of regressions checks whether the effect of a particular country's ownership is due to differences in the relationship between the other independent variables and the country of ownership (slope effects) rather than to any overall country-of-ownership effect (intercept effect).

Table 15.—Regression Analysis: Country-of-Ownership Effects on Production-Worker Wages (Intercept Only), 1991

Equation [1]	Number of observations	R^2	Country-of-owner variables	
			Country	Intercept effect [2]
1	6,139	0.696	Canada	0.006 *(.019)*
2	6,139	.698	France	.063*** *(.018)*
3	6,139	.696	Germany	.005 *(.018)*
4	6,139	.696	Netherlands	.008 *(.024)*
5	6,139	.697	United Kingdom	–.043*** *(.013)*
6	6,139	.696	Japan	.005 *(.018)*

*** Significant at the 1-percent level.
** Significant at the 5-percent level.
* Significant at the 10-percent level.

1. Each equation included controls for four-digit SIC industry and for State and included variables for plant scale and capital intensity. The coefficients for plant scale and capital intensity were significant at the 1-percent level in all equations, and the values for each coefficient varied only slightly across equations. In all equations, the coefficients of the plant-scale variable rounded to 0.065, and those of the capital-intensity variable rounded to –0.032. Capital intensity was measured using a proxy variable (see the appendix).

2. In each equation, the country-of-owner dummy variable tested whether the wages paid by the establishments of the specified country differed from those paid by the establishments of the other five countries, once the industry and State controls and the other independent variables were taken into account.

NOTE.—The observations were the individual establishments of the six countries. All variables were expressed as natural logs; numbers in parentheses are standard errors.

Unlike the analysis elsewhere in the article, which was based on industry-level aggregations, the regressions used establishment-level data. Six equations—one for each country—were estimated for each set of regressions. In each case, the observations were the individual establishments of all six countries. In the equation for each country, a dummy variable for that

Table 17.—Regression Analysis: Country-of-Ownership Effects on Value Added per Production-Worker Hour (Intercept Only), 1991

Equation [1]	Number of observations	R^2	Country-of-owner variables	
			Country	Intercept effect [2]
1	6,139	0.814	Canada	0.014 *(.037)*
2	6,139	.814	France	.023 *(.035)*
3	6,139	.814	Germany	–.023 *(.035)*
4	6,139	.814	Netherlands	.014 *(.045)*
5	6,139	.814	United Kingdom	.053** *(.025)*
6	6,139	.814	Japan	–.118*** *(.034)*

*** Significant at the 1-percent level.
** Significant at the 5-percent level.
* Significant at the 10-percent level.

1. Each equation included controls for four-digit SIC industry and for State and included variables for plant scale, capital intensity, and employee skill level. The coefficients for plant scale, capital intensity, and employee skill level were significant at the 1-percent level in all equations, and the values for each coefficient varied only slightly across equations. In all equations, the coefficients of the plant-scale variable rounded to 0.220, those of the capital-intensity variable rounded to 0.259, and those of the employee- skill-level variable ranged from 0.621 to 0.626. Capital intensity was measured using a proxy variable (see the appendix).

2. In each equation, the country-of-owner dummy variable tested whether the value added per production-worker hour of establishments of the specified country differed from that of the establishments of the other five countries, once the industry and State controls and the other independent variables were taken into account.

NOTE.—The observations were the individual establishments of the six countries. All variables were expressed as natural logs; numbers in parentheses are standard errors.

Table 16.—Regression Analysis: Country-of-Ownership Effects on Production-Worker Wages (Intercept and Slope), 1991

Equation [1]	Number of observations	R^2	Country-of-owner variables [2]			
			Country	Intercept effect	Slope effect	
					Plant scale [3]	Capital intensity [3]
1	6,139	0.696	Canada	–0.149 *(.108)*	0.020* *(.011)*	0.014 *(.017)*
2	6,139	.697	France	.125 *(.094)*	–.004 *(.010)*	.025* *(.013)*
3	6,139	.696	Germany	–.016 *(.104)*	(†) *(.011)*	–.015 *(.017)*
4	6,139	.696	Netherlands	.288* *(.158)*	–.029* *(.016)*	.009 *(.026)*
5	6,139	.697	United Kingdom	–.062 *(.072)*	–.001 *(.008)*	–.016 *(.010)*
6	6,139	.696	Japan	.040 *(.104)*	–.008 *(.011)*	–.022 *(.016)*

*** Significant at the 1-percent level.
** Significant at the 5-percent level.
* Significant at the 10-percent level.
† Less than 0.0005(±).

1. Each equation included controls for four-digit SIC industry and for State and included variables for plant scale and capital intensity. The coefficients for plant scale and capital intensity were significant at the 1-percent level in all equations. The coefficients of the plant-scale variable ranged from 0.061 to 0.067, and those of the capital-intensity variable ranged from –0.026 to –0.035.

2. In each equation, the country-of-owner dummy variables tested whether the wages paid by the establishments of the specified country differed from those paid by the establishments of the other five countries, once the industry and State controls and the other independent variables were taken into account.

3. See the text and the appendix for the definitions of these variables.

NOTE.—The observations were the individual establishments of the six countries. All variables were expressed as natural logs; numbers in parentheses are standard errors.

country is used to test whether that country's establishments differed from the establishments of the other five countries once the industry and State controls and the other independent variables were taken into account.

In the regressions, capital intensity was measured indirectly using a proxy variable—the ratio of total fuel costs to production-worker wages—because the data needed to measure it directly were not available.[35] The regressions controlled for industry and State by including the mean values of the dependent variables in each industry in each State as independent variables. This procedure is equivalent to including dummy variables in the equations for each industry-State cell.

The sample of establishments used for the regression analysis was somewhat smaller than that used for the analysis elsewhere in the article because it excluded establishments for which the value for one of the variables in the regression equations either could not be calculated or was an extreme outlier. (Most of the variables in the regression equations are ratios—for example, value added per production-worker hour; a value for a ratio could not be calculated for a particular establishment if the denominator was zero.) A total of 6,139 establishments were included in the sample used for the regression analysis. These establishments accounted for 82 percent of the employment and 86 percent of the value added of all operating establishments of the six countries.

35. In "Characteristics of Foreign-Owned U.S. Manufacturing Establishments," an alternative proxy, the non-employee compensation share of value added, was used. Tests of how well the alternative proxy and the one used in this article correspond to a capital stock measure obtained in BEA's annual survey of foreign direct investment in the United States indicated that the correlation was much closer for the proxy used in this article than for the alternative.

Table 19.—Regression Analysis: Country-of-Ownership Effects on Output per Production-Worker Hour (Intercept), 1991

Equation [1]	Number of observations	R^2	Country-of-owner variables	
			Country	Intercept effect [2]
1	6,139	0.852	Canada	–0.007 (.032)
2	6,139	.852	France	.013 (.030)
3	6,139	.852	Germany	–.009 (.030)
4	6,139	.852	Netherlands	.001 (.039)
5	6,139	.852	United Kingdom	.016 (.022)
6	6,139	.852	Japan	–.030 (.029)

*** Significant at the 1-percent level.
** Significant at the 5-percent level.
* Significant at the 10-percent level.

1. Each equation included controls for four-digit SIC industry and for State and included variables for plant scale, capital intensity, employee skill level, and the ratio of purchased materials to output. The coefficients for plant scale, capital intensity, employee skill level, and the ratio of purchased materials to output were significant at the 1-percent level in all equations, and the values for each coefficient varied only slightly across equations. In all equations, the coefficients of the plant-scale variable rounded to 0.115, those for the capital- intensity variable rounded to 0.312, those for the employee-skill-level variable ranged from 0.708 to 0.710, and those for the ratio of the purchased-materials-to- output variable ranged from 0.155 to 0.157. Capital intensity was measured using a proxy variable (see the appendix).

2. In each equation, the country-of-owner dummy variable tested whether output per production-worker hour of the establishments of the specified country differed from that of the establishments of the other five, once the industry and State controls and the other independent variables were taken into account.

NOTE.—The observations were the individual establishments of the six countries. All variables were expressed as natural logs; numbers in parentheses are standard errors.

Table 18.—Regression Analysis: Country-of-Ownership Effects on Value Added per Production-Worker Hour (Intercept and Slope), 1991

Equation [1]	Number of observations	R^2	Country-of-owner variables [2]				
			Country	Intercept effect	Slope effect		
					Plant scale [3]	Capital intensity [3]	Employee skill level [4]
1	6,139	0.814	Canada	–0.121 *(.262)*	–0.034 *(.022)*	–0.093** *(.033)*	0.114 *(.094)*
2	6,139	.815	France	–.597** *(.282)*	.085*** *(.021)*	–.006 *(.026)*	–.044 *(.099)*
3	6,139	.814	Germany	.335 *(.279)*	–.015 *(.022)*	–.057* *(.032)*	–.122 *(.102)*
4	6,139	.814	Netherlands	–1.345** *(.438)*	.047 *(.031)*	–.082 *(.051)*	.324 *(.142)*
5	6,139	.815	United Kingdom	.344* *(.191)*	–.008 *(.016)*	.073*** *(.020)*	–.044 *(.065)*
6	6,139	.814	Japan	–.129 *(.266)*	–.017 *(.021)*	–.016 *(.030)*	.054 *(.084)*

*** Significant at the 1-percent level.
** Significant at the 5-percent level.
* Significant at the 10-percent level.

1. Each equation included controls for four-digit SIC industry and for State and variables for plant scale, capital intensity, and employee skill level. The coefficients for plant scale, capital intensity, and employee skill level were significant at the 1-percent level in all equations. The coefficients of the plant-scale variable ranged from 0.207 to 0.227, those for the capital-intensity variable ranged from 0.230 to 0.269, and those for the employee-skill-level variable ranged from 0.606 to 0.648.

2. In each equation, the country-of-owner dummy variables tested whether the value added per production-worker hour of establishments of the specified country differed from that of the establishments of the other five countries, once the industry and State controls and the other independent variables were taken into account.

3. See the text and the appendix for the definitions of these variables.

4. Measured as production-worker wages per hour.

NOTE.—The observations were the individual establishments of the six countries. All variables were expressed as natural logs; numbers in parentheses are standard errors.

Alternative regression method

The results obtained when an alternative regression method was used are shown in table 21. Under this method, for each dependent variable, a single equation was estimated that includes country-of-ownership variables for five of the six countries, and the sixth country was used as the base.

In the alternative regressions, the coefficients of the country-of-ownership variables provide estimates of the extent to which the wage rates or labor productivity of the establishments of each of the five countries differ from the wage rates or labor productivity of the establishments of the base country. The country chosen to serve as base country could have been any of the six countries. In order to facilitate the comparisons of the results of these regressions with the previous regressions, the base country selected was the one for which the coefficient for the country-of-ownership variable was closest to the average for the establishments of all six countries. Thus, in the wage-rate equation, Germany was chosen as the base country, and in the productivity equations, Canada was chosen.

The regression results shown in table 21 are generally consistent with those shown in tables 15, 17, and 19. For example, a comparison of the wage-rate regressions for the two methods indicates that if the coefficients of the country-of-owner variables in the equation in table 21

Table 20.—Regression Analysis: Country-of-Ownership Effects on Output per Production-Worker Hour (Intercept and Slope), 1991

Equation [1]	Number of observations	R^2	Country-of-owner variables [2]					
			Country	Intercept effect	Slope effect			
					Ratio of purchased materials to output [3]	Plant scale [3]	Capital intensity [3]	Employee skill level [4]
1	6,139	0.854	Canada	−0.068 *(.227)*	−0.240*** *(.053)*	−0.038* *(.019)*	−0.045 *(.029)*	0.053 *(.081)*
2	6,139	.853	France	−.334 *(.244)*	−.024 *(.064)*	.050** *(.019)*	−.005 *(.023)*	−.039 *(.086)*
3	6,139	.853	Germany	.007 *(.244)*	−.052 *(.068)*	−.002 *(.019)*	−.066** *(.028)*	−.053 *(.089)*
4	6,139	.853	Netherlands	−.938** *(.381)*	.030 *(.084)*	.047* *(.028)*	−.044 *(.046)*	.186 *(.123)*
5	6,139	.853	United Kingdom	.310* *(.165)*	−.004 *(.047)*	−.012 *(.014)*	.083*** *(.017)*	−.024 *(.056)*
6	6,139	.855	Japan	−.107 *(.228)*	.504*** *(.065)*	.030 *(.019)*	−.063** *(.026)*	.022 *(.072)*

*** Significant at the 1-percent level.
** Significant at the 5-percent level.
* Significant at the 10-percent level.
1. Each equation included controls for four-digit SIC industry and for State and included variables for plant scale, capital intensity employee skill level, and the ratio of purchased materials to output. The coefficients for plant scale, capital intensity, employee skill level, and the ratio of purchased materials to output were significant at the 1-percent level in all equations. The coefficients of the plant-scale variable ranged from 0.107 to 0.124, those for the capital-intensity variable ranged from 0.279 to 0.324, those for the employee-skill-level variable ranged from 0.698 to 0.724, and those for the ratio of the purchased-materials-to-output variable ranged from 0.089 to 0.212.
2. In each equation, the country-of-owner dummy variables tested whether output per production-worker hour of the establishments of the specified country differed from that of the establishments of the other five, once the industry and State controls and the other independent variables were taken into account.
3. See the text and the appendix for the definitions of these variables.
4. Measured as production-worker wages per hour.
NOTE.—The observations were the individual establishments of the six countries. All variables were expressed as natural logs; numbers in parentheses are standard errors.

Table 21.—Regression Analysis: Alternative Method, 1991

Dependent variable	Number of observations	R^2	Plant scale [1]	Capital intensity [1]	Employee skill level [2]	Ratio of purchased materials to output [1]	Country-owner variables					
							Canada	France	Germany	Netherlands	United Kingdom	Japan
Production-worker wages per hour [3]	6,139	0.697	0.065*** *(.005)*	−0.031*** *(.008)*			−0.001 *(.025)*	0.047* *(.024)*	(B)	0.002 *(.028)*	−0.032 *(.020)*	−0.003 *(.023)*
Value added per production-worker hour [3]	6,139	.814	.220*** *(.009)*	.259*** *(.015)*	.624*** *(.035)*		(B)	.010 *(.047)*	−.038 *(.048)*	−.006 *(.056)*	.019 (.040)	−.116** *(.047)*
Output per production-worker hour [3]	6,139	.852	.115*** *(.008)*	.312*** *(.013)*	.709*** *(.030)*	.157*** *(.025)*	(B)	.018 *(.041)*	−.003 *(.041)*	.004 *(.048)*	.016 *(.035)*	−.020 *(.041)*

*** Significant at the 1- percent level.
** Significant at the 5- percent level.
* Significant at the 10-percent level.
B Base country (see the appendix).
1. See the text and the appendix for the definitions of these variables.
2. Measured as production-worker wages per hour.
3. The equation included controls for four-digit SIC industry and for State. In the equation, the country-of-owner dummy variables tested whether the establishments of each of the other five countries differed from the establishments of the base country, once the industry and State controls and the other independent variables were taken into account.
NOTE.—The observations were the individual establishments of the six countries. All variables were expressed as natural logs; numbers in parentheses are standard errors.

are ranked in terms of their size, the ranking is identical to that obtained when the coefficients of the country-of-owner variables in table 15 are ranked. In particular, both methods indicate that the wage rates of French-owned establishments are higher than those of the other establishments once differences in industry mix, location, scale, and capital intensity are taken into account. Similarly, both methods indicate that the wage rates of British-owned establishments are lower than those of the other establishments.

Although providing similar rankings, the two sets of results differ in the degree of confidence associated with the estimated coefficients of the country-of-owner variables. For example, in the equations in table 15, the coefficients of the country-of-owner variables in the equations for both France and the United Kingdom are significant at the 1-percent level. In contrast, in the wage-rate equation in table 21, the coefficient for the country-of-owner variable for France is significant only at the 10-percent level, and the coefficient for the United Kingdom is not statistically significant.

These differences in statistical significance arise because in table 21, the coefficients are estimated on the basis of a comparison of the establishments of a particular country with the establishments of the base country (Germany, in the case of the wage-rate equation) and because in table 15, the coefficients are estimated on the basis of a comparison of the wage rates of the establishments of a particular country with the wage rates of the establishments of the other five countries taken as a group. When a single country is used as the base country, associations between the industry mix or location variables and the country-of-owner variables for either the base country or the subject country can limit the ability of the regression procedure to separate the country-of-ownership effects from the industry-mix effects or the location effects.

Guides to the Statistics

A Guide to BEA Statistics on U.S. Multinational Companies

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STATISTICS ON U.S. multinational companies (MNC's) produced by the Bureau of Economic Analysis (BEA) provide a comprehensive and integrated data set for empirical analysis of MNC's and of the effects of MNC's on the economies of home and host countries. When this data set began in 1929, its scope was limited to one data item—the value of foreign commercial assets controlled by U.S. companies. Since then, the scope of these statistics has greatly expanded in step with the growth in MNC's and the increasing integration of the global economy.[1] BEA's current data on U.S. MNC's are among the most diverse in the world, ranging from traditional balance-of-payments items that most countries produce to "financial and operating" items that few other countries produce but that allow a much broader understanding of U.S. MNC's (see box "Note on International Comparability"). This article provides an introductory guide to these statistics.

The statistics on U.S. MNC's support numerous activities by the government and the private sector, including the following:

- Compilation of the U.S. economic accounts by BEA;
- Conduct of bilateral and multilateral negotiations to reduce barriers to investment and trade;
- Studies by academic and government researchers to assess the impact of U.S. investment abroad on the U.S. and foreign economies; and
- Strategic planning by U.S. businesses.

This guide is intended to familiarize the reader with the statistics available on U.S. MNC's (sections I and II), some of the major questions they can and cannot answer (section III), and some details on their presentation (section IV). Many topics are covered in less than full detail; a more detailed and technical methodology can be found in *U.S. Direct Investment Abroad: 1989 Benchmark Survey, Final Results.*[2]

In this guide, the following terms are used extensively. *Direct investment* is investment in which a resident of one country obtains a lasting interest in, and a degree of influence over the management of, a business enterprise in another country. In the United States, the criterion used to distinguish *U.S. direct investment abroad* (USDIA) from other types of investment abroad is the ownership of at least 10 percent of a foreign business enterprise; thus, USDIA is the ownership or control, directly or indirectly, by one U.S. resident of 10 percent or more of the voting securities of an incorporated foreign business enterprise or the equivalent interest in an unincorporated foreign business enterprise.[3] A *U.S. parent company* (also referred to as "U.S. parent" or "parent") is a U.S. business that undertakes USDIA; a *foreign affiliate* (also referred to as "affiliate") is a foreign business in which the U.S. parent has a direct investment interest; and a *U.S. MNC* is the combined operations of the parent and its affiliates.

BEA produces two broad sets of data on U.S. MNC's: (1) Balance of payments and direct investment position data and (2) financial and operating data. The *balance of payments and direct investment position data* focus solely on the value of transactions between U.S. parents and

1. From 1929 to 1950, the Commerce Department conducted five surveys of U.S. MNC's to determine the book value of American business investments in foreign countries. A census covering 1957 represented a significant expansion in the scope and purpose of these surveys. Its goal was to evaluate "...the full effects of U.S. business investments both on our domestic economy and on the economies of foreign countries..." (U.S. Department of Commerce, Office of Business Economics, *U.S. Business Investments in Foreign Countries: A Supplement to the SURVEY OF CURRENT BUSINESS* (Washington, DC, U.S. Government Printing Office, 1962): iii). To fulfill this goal, the data items collected were greatly expanded to include, for instance, condensed balance sheets and income statements, employment, and U.S. merchandise trade of foreign affiliates. In both form and function, the 1957 survey can be regarded as the prototype for all of BEA's later U.S.-MNC surveys.

2. *U.S. Direct Investment Abroad: 1989 Benchmark Survey, Final Results*, U.S. Department of Commerce, Bureau of Economic Analysis (Washington, DC: U.S. Government Printing Office, October 1992).

3. This definition is consistent with guidelines established by the International Monetary Fund (IMF) and the Organisation for Economic Co-operation and Development (OECD). See IMF, *Balance of Payments Manual*, 5th ed. (Washington, DC: IMF, 1993): 86–87 and OECD, *Detailed Benchmark Definition of Foreign Direct Investment*, 2nd ed. (Paris: OECD, 1992).

their foreign affiliates and the cumulative value of parents' investments in their affiliates. The *financial and operating data*, in contrast, provide a wide variety of indicators of the overall domestic and foreign operations of U.S. MNC's, irrespective of the degree of intra-MNC funding. For example, total foreign-affiliate assets (which can be funded by internal affiliate funds, by funds received from foreigners and unaffiliated U.S. persons, as well as by funds received from U.S. parents) were $1.7 trillion in 1992, and the direct investment position (which measures the portion of affiliate assets that are funded by U.S. parents) was $499 billion.

Both types of data are collected in mandatory surveys conducted regularly by BEA. Benchmark surveys (or censuses), which are currently conducted every 5 years, are the most comprehensive surveys in several respects: (1) They collect both types of data, (2) they cover virtually the entire population—or universe—of U.S. MNC's in terms

Note on International Comparability

International guidelines for the compilation of balance of payments and direct investment position data have been set forth by several international organizations. Recently, these guidelines have undergone major revisions, as part of an internationally coordinated effort to modernize and extend international standards for economic accounting and to improve harmonization among the recommendations of different organizations. The BEA data on direct investment discussed in this article conform closely with these guidelines. The data of other countries generally conform less closely, and thus often are not comparable with BEA's data, but efforts to improve conformity are under way in many countries. As a result, the international comparability of direct investment statistics, while incomplete, is improving and should continue to improve as these efforts continue.

The most detailed recommendations specifically pertaining to direct investment appear in the International Monetary Fund's (IMF) *Balance of Payments Manual* and the Organisation for Economic Cooperation and Development's (OECD) *Detailed Benchmark Definition of Foreign Direct Investment;* recommendations consistent with these are employed in the external sector of the international *System of National Accounts 1993* (SNA).[1] As now constructed, this body of recommendations provides comprehensive and detailed international standards for recording both positions (stocks) and flows related to direct investment.[2] The recommendations cover a wide range of issues, including concepts and definitions, time of recording, geographical allocation, and valuation.

Direct investment statistics are currently available for roughly 100 countries. However, many of these countries' statistics deviate significantly from international guidelines.[3] One of the most common deviations is the lack of information on reinvested earnings. Although a major source of financing for direct investment—accounting for almost 60 percent of capital outflows for U.S. direct investment abroad in 1994—reinvested earnings are not covered in the statistics of the many countries that must use central bank statistics, rather than survey information obtained from direct investors or their affiliates, as their primary data source. (Unlike equity capital flows or distributions of dividends, reinvested earnings do not give rise to foreign exchange transactions that would flow through the banking system.) Japan and France, for example, are among the many countries lacking information on reinvested earnings. As efforts to improve conformity with international guidelines proceed, perhaps the most important task, as well as one of the most difficult, will be achieving more widespread coverage of reinvested earnings.

Another common deviation is the use of a percentage-ownership threshold different from the recommended 10-percent level for identifying an investment as "direct." For example, the United Kingdom and Germany use a threshold of 20 percent. In addition, some countries do not use ownership percentages as the sole criteria for defining direct investment; instead, they attempt to evaluate individual investments subjectively in determining whether the degree of influence or control is consonant with the general concept of direct investment.

A few other variances from international guidelines may be observed in the statistics of some countries. For instance, some countries exclude certain types of intercompany debt from direct investment, while others may exclude investment in certain industries. Still other countries base their statistics on government approvals of investments rather than on actual flows of funds.

Compared with direct investment balance of payments and position data, financial and operating data for MNC's are much less widely available. In fact, the United States is one of only a very few countries that now produce such data. However, the need for such data is becoming more widely recognized, and several countries are trying to find ways to develop them. Major factors that have heightened interest in these data include the increasing economic interdependence of world economies, the adoption by many companies of global business strategies and internationally integrated production processes, and the increasingly common practice of broadening bilateral and multilateral commercial agreements to cover not only trade issues, as in the past, but also investment issues. Among the financial and operating data items that appear to be of primary interest are intra-firm trade flows and local sales by foreign affiliates (sometimes termed "establishment trade"). Because of the pioneering role of the United States in developing financial and operating data for MNC's, BEA is frequently consulted by national statistical offices and international organizations in connection with attempts to develop such data for other countries.

1. See *System of National Accounts 1993* (Brussels/Luxembourg, New York, Paris, and Washington, DC: Commission of the European Communities, IMF, OECD, United Nations, and World Bank, 1993).

2. The new (5th) edition of the IMF *Manual* is the first to deal with the measurement of stocks of investment; previous editions dealt only with flow items included in balance of payments accounts. This change not only was an improvement in its own right, but it also improved harmonization between the *Manual* and the SNA. (A major change introduced in the latest revision of the SNA was improved integration in the treatment of stocks and flows.) Other major changes introduced in the revised *Manual* include provision of more detailed guidance for recording trade in services and transactions involving new and emerging financial instruments.

3. The United Nations recently published a compendium of direct investment statistics worldwide; see United Nations Conference on Trade and Development, *World Investment Directory*, vol. I–VI (New York: United Nations, 1994). For more detailed information on direct investment definitions used by OECD members, see OECD, "Technical Notes," *International Direct Investment Statistics Yearbook 1994* (Paris: OECD, 1994): 266–312.

of dollar value, and (3) they obtain more data items than are collected in the other surveys.

In addition to the benchmark surveys, BEA conducts quarterly and annual sample surveys. The balance of payments and direct investment position estimates are based on data collected in the quarterly surveys, and the financial and operating estimates are based on data collected in the annual surveys. In the sample surveys, reports are not required for small affiliates, in order to reduce the reporting burden on the U.S. companies that must file. Instead, BEA estimates the data for these affiliates by extrapolating forward their data from the most recent benchmark survey on the basis of the movement of the sample data. Thus, coverage of the U.S.-MNC universe is complete in nonbenchmark, as well as benchmark, periods.

Balance of Payments and Direct Investment Position Data

Balance of payments and direct investment position data track transactions between U.S. parents and their foreign affiliates and the cumulative value of parents' investment in their affiliates, respectively. These data are essential inputs to the U.S. economic accounts; they contribute to the balance of payments accounts, the U.S. international investment position (IIP), the national income and product accounts (NIPA's), and the input-output (I-O) accounts.

The balance of payments accounts measure economic transactions between U.S. and foreign residents and consist of two major accounts: The current account, which covers transactions in goods, services, income, and unilateral transfers, and the capital account, which covers changes in financial claims and liabilities. Direct investment *current-account flows* measure receipts and payments between parents and affiliates for the use of capital or the provision of services, such as royalties paid by affiliates to their U.S. parents for the use of a production process. Direct investment *capital-account flows* measure movements of capital between parents and affiliates, such as equity investment by parents in their affiliates or loans between parents and affiliates.

The IIP measures the accumulated stocks of U.S. assets abroad and foreign assets in the United States. One important component of the IIP is the *U.S. direct investment position abroad*, which measures the value of the net accumulated stock of capital that U.S. parents have provided to their foreign affiliates.

The NIPA's measure the Nation's output of goods and services. Direct investment current-account flows are included in two key summary NIPA measures—gross domestic product (GDP) and gross national product (GNP). All U.S.-parent receipts under current-account flows enter GNP because they reflect the value of output of labor and property supplied by U.S. residents (regardless of the location of the labor or property—in the United States in a U.S. parent company or abroad in a foreign affiliate).[4] However, only those U.S.-parent receipts under current-account flows that reflect the output of labor and property located in the United States (that is, U.S.-parent exports of goods and services) enter GDP.[5]

The I-O accounts depict the economic interactions between industries in the U.S. economy. They show, for each industry, the amount of its output that goes to each other industry as raw materials or semifinished products, and the amount that is sold to the final markets of the economy, placed in inventory, or exported; U.S.-parent exports of goods and services are included in the exports. From a different perspective, the I-O accounts show each industry's contribution to the production process—in the form of value added as well as its consumption of the products of other domestic industries and imported products; U.S.-parent imports of goods and services are included in the imports.[6]

Current-account flows

As mentioned earlier, direct investment current-account flows measure receipts and payments

4. GNP measures the output of labor and property (located either here or abroad) supplied by U.S. residents.

5. GDP measures the output of labor and property located in the United States.

6. For a more detailed explanation of the structure and concepts of the I-O accounts, see "Benchmark Input-Output Accounts for the U.S. Economy, 1987," SURVEY OF CURRENT BUSINESS 74 (April 1994): 73–115.

Table 1.—Current-Account Flows on U.S. Direct Investment Abroad, 1993

[Millions of dollars]

Income	57,515
Earnings	56,117
Distributed earnings	26,552
Reinvested earnings	29,565
Interest	1,398
U.S. parents' receipts	3,746
U.S. parents' payments	2,349
Royalties and license fees	14,926
U.S. parents' receipts	15,158
U.S. parents' payments	232
Other services	4,908
U.S. parents' receipts	10,497
U.S. parents' payments	5,589

NOTE.—Income includes a current-cost adjustment. All estimates are before deduction of withholding taxes.

that accrue between U.S. parents and their foreign affiliates in return for providing capital to, or performing services for, one another.[7] These receipts and payments fall into three categories: Direct investment income, royalties and license fees, and charges for other services (table 1). *Direct investment income* is the U.S. parents' return on capital that they have provided to their foreign affiliates. It comprises (1) U.S. parents' claims on the earnings (or profits) of foreign affiliates and (2) U.S. parents' interest receipts on loans to their foreign affiliates, less the parents' interest payments on loans from their foreign affiliates.[8] The earnings component of direct investment income is computed after foreign income taxes and excluding capital gains and losses. No distinction is made between earnings that are distributed to the parent and those that are reinvested; both are included in direct investment income.

EXAMPLE: A U.S. parent has an 80-percent equity interest in a Korean affiliate, and the affiliate has after-tax earnings of $100 million. The affiliate distributes one-half of its earnings to its owners and reinvests the remainder. In this case, assuming there are no interest receipts and payments between the parent and the affiliate, the parent's direct investment income from that affiliate would be $80 million, or 80 percent of the $100 million in after-tax earnings.

The remaining direct investment current-account flows—royalties and license fees and charges for other private services—represent receipts and payments that accrue between U.S. parents and foreign affiliates for providing services to one another. *Royalties and license fees* represent charges for intangible property or rights, such as patents, trademarks, copyrights, franchises, manufacturing rights, and other intangible assets or proprietary rights. For example, a U.S. parent in the computer industry may collect royalties from its foreign affiliate when the affiliate sells computer networks that use operating systems developed by the parent. *Charges for other services* cover fees for management, professional, or technical services; rentals for the use of tangible property; and film and television tape rentals. For example, a U.S. automobile company may collect fees from its foreign affiliate when it provides technical assistance in introducing new manufacturing systems and techniques or when it performs research and development on behalf of its affiliate.

The data on direct investment current-account flows that are collected in BEA surveys are adjusted before they are incorporated into the balance of payments accounts and the NIPA's. Direct investment income is converted from a financial accounting basis to an economic accounting basis, so that its earnings component will reflect the contribution of direct investment capital to current-period production.[9] In addition, the effect of withholding taxes is removed from all reported current-account flows.[10]

Capital-account flows

Direct investment capital flows measure funds that U.S. parent companies provide to their foreign affiliates (outflows), *net of* funds that affiliates provide to their parents (inflows) during a given period.[11] These funds can be supplied in three forms: Equity capital, intercompany debt, and reinvested earnings (chart 1).

Equity capital outflows occur when a U.S. parent increases its equity investment in one of its existing foreign affiliates or makes a new equity investment in a foreign business enterprise, either by acquiring an existing foreign business or by establishing a new one (chart 1, first arrow). Equity capital inflows occur when a U.S. parent reduces its equity interest in an existing affiliate (chart 1, second arrow).

EXAMPLE: If a U.S. company acquires a British company by purchasing all of that company's

7. Receipts and payments between U.S. parents and foreign affiliates for providing goods to one another (U.S. merchandise exports and imports) also are included in the current account, but they are not separately identified. (They are, however, separately identified in the direct investment financial and operating data; see the section "Financial and Operating Data.")

8. In all the examples in this article, the voting interest (the basis for distinguishing direct investment) is assumed to be the same as the financial interest (the basis for apportioning claims on earnings) that the U.S. parent has in its foreign affiliate. This is usually the case, but the two sometimes differ.

9. The conversion is accomplished through four adjustments. First, as noted earlier, capital gains and losses are removed from reported earnings, because they represent changes in the dollar value of existing assets, not charges against current production. Second, a capital consumption adjustment is made to convert depreciation charges from a historical-cost basis to a current- (or replacement-) cost basis. Third, charges for the depletion of natural resources are added back to earnings because these charges are not treated as production costs in the NIPA's. Fourth, expenses for mineral exploration and development are reallocated across time periods to ensure that they are written off over their economic lives rather than all at once. Except for the removal of capital gains and losses, these adjustments are made to direct investment income only at the global level; the other adjustments cannot be made below the global level because the required data are not available. For additional information, see "U.S. International Transactions: First Quarter 1992 and Revised Estimates for 1976–91," SURVEY 72 (June 1992): 72–75.

10. Withholding taxes are taxes withheld by governments on income or other funds that are distributed or remitted, such as payments for services.

The direct investment current-account flow totals that enter the balance of payments accounts and NIPA's are gross of withholding taxes, in accordance with international guidelines. However, detailed estimates of these flows by country and by industry are net of withholding taxes because country-specific information on some types of withholding taxes is not available.

11. A rare exception to this rule occurs when a foreign affiliate has an equity interest in its U.S. parent. In this case, changes in the affiliate's equity interest in its U.S. parent are not recorded as capital inflows on USDIA, but rather as capital inflows on foreign direct investment in the United States if the interest is at least 10 percent or on foreign portfolio investment in the United States if the interest is less than 10 percent.

stock for $500 million, a $500 million equity capital outflow would be recorded. If, after a time, the U.S. company sells this stock to a foreign resident for $500 million, a $500 million equity capital inflow would be recorded.

Intercompany debt flows are of two types: U.S.-parent receivables and U.S.-parent payables. U.S.-parent *receivables* represent loans that a U.S. parent extends to its foreign affiliate.[12] An outflow on U.S.-parent receivables occurs when the parent extends a new loan to its affiliate (chart 1, third arrow); an inflow occurs when an affiliate repays part or all of a loan from its U.S. parent (chart 1, fourth arrow).

EXAMPLE: If a U.S. parent makes a $50 million loan to its Canadian affiliate in the first quarter of the year and the affiliate repays one-half of the principal in the second quarter, a $50 million outflow in the first quarter and a $25 million inflow in the second quarter would be recorded under U.S.-parent receivables.

U.S.-parent *payables* represent loans that a foreign affiliate extends to its U.S. parent. An outflow on U.S.-parent payables occurs when the parent repays part or all of a loan from its foreign affiliate (chart 1, fifth arrow); an inflow occurs when an affiliate extends a new loan to its U.S. parent (chart 1, sixth arrow).

Reinvested earnings are the U.S. parent's claim on the undistributed after-tax earnings of its foreign affiliate. They are computed as the difference between a parent's claim on its affiliate's current earnings and the dividends that the affiliate pays to its parent in a given period.[13] Reinvested earnings are positive when a parent has a claim on positive current earnings of its affiliate in excess of the dividends that it receives from its affiliate (chart 1, seventh arrow).

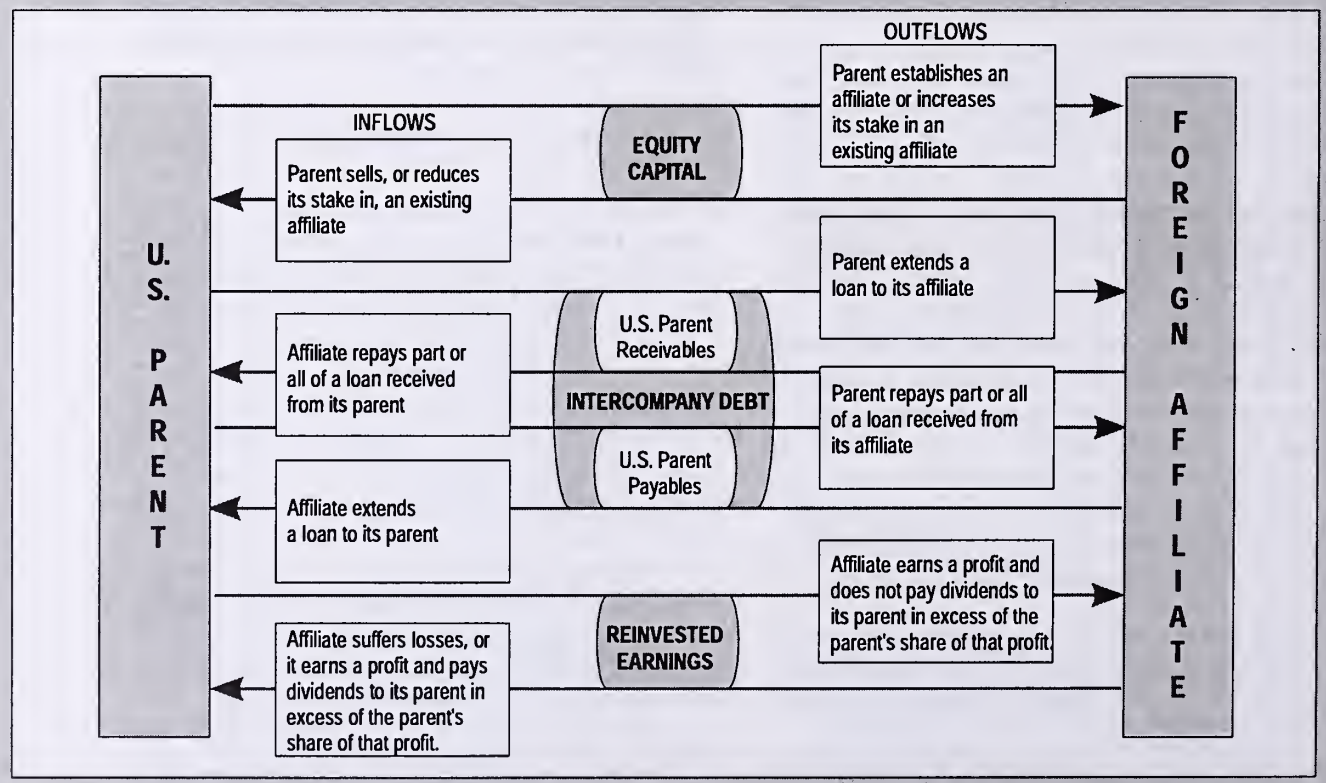
EXAMPLE: A wholly owned French affiliate earns $100 million after taxes and pays a $20 million dividend to its U.S. parent; the $80 million dif-

12. The word "loan" is used loosely to signify all classes of financial obligations, which include trade accounts, notes payable, and dividends payable as well as loan obligations.

13. The word "dividend" is used loosely to signify all distributions from cumulative retained earnings, including earnings distributions from unincorporated affiliates as well as dividends from incorporated affiliates.

CHART 1

Components of Capital Inflows and Outflows on U.S. Direct Investment Abroad



U.S. Department of Commerce, Bureau of Economic Analysis

ference between earnings and dividends would be recorded as reinvested earnings.

Reinvested earnings are negative when an affiliate's current earnings are negative or the parent receives dividends in excess of its claim on current earnings (chart 1, eighth arrow).[14]

Direct investment position

In contrast to the current- and capital-account items discussed above, which measure flows during a given period of time, the U.S. *direct investment position* abroad (also referred to as the "position") is a stock item. As such, it measures the total outstanding level of USDIA at a given point in time. The position is measured as the yearend value of U.S. parents' equity (including retained earnings) in, and net outstanding loans to, their foreign affiliates.

Three alternative valuations of the position are available: Historical cost, current cost, and market value. The historical-cost position measures USDIA at its book value, which in most cases is the initial acquisition price. Book value is the standard valuation method for financial accounting and thus is used by MNC's when reporting direct investment data to BEA. Its analytical usefulness is limited, however, because it reflects prices of various years and thus cannot be interpreted as either a constant- or a current-dollar value.

To meet the need for measures that are valued at prices of the current period, BEA has developed current-cost and market-value estimates of the position.[15] The direct investment position at *current cost* revalues that portion of the position that represents U.S. parents' claims on the tangible assets of affiliates (such as plant, equipment, and inventories), using price indices appropriate to each of a few broad asset classes. The direct investment position at *market value* revalues both the tangible and intangible assets on which U.S. parents have claims, using aggregate stock price indices for foreign countries.[16] Market-value estimates tend to be more volatile than those based on historical or current cost (chart 2) because of the high volatility of stock market prices.

The current-cost and market-value estimates are produced only at the global level and not by country or industry.

Year-to-year change in the position.—The year-to-year change in the position is the sum of direct investment capital flows and *valuation adjustments* (table 2). Valuation adjustments are broadly defined to include all changes in the position other than capital outflows; they result from price changes, exchange-rate changes, and other factors. Valuation adjustments to the historical-cost position consist of translation adjustments, other capital gains and losses, and other adjustments. Valuation adjustments to the

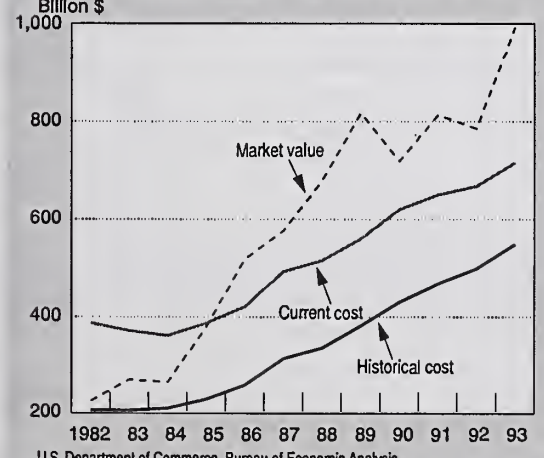
14. Dividends may exceed current earnings because they are paid out of cumulative retained earnings, and thus they may reflect prior-period, as well as current-period, earnings.

15. These two measures not only enhance the analysis of direct investment but also put direct investment on valuation bases consistent with those used for other types of assets included in the IIP. See "Valuation of the U.S. Net International Investment Position," SURVEY 71 (May 1991): 40–49.

16. These indices are from Morgan Stanley Capital International. BEA's market-value estimates revalue only the owners' equity portion of the position; the intercompany debt portion is assumed to be approximately valued at current-period prices.

CHART 2

Alternative Valuations of the U.S. Direct Investment Position Abroad, 1982–93



U.S. Department of Commerce, Bureau of Economic Analysis

Table 2.—Change in the U.S. Direct Investment Position Abroad by Account

[Millions of dollars]

Line		Historical cost	Current cost	Market value
1	**Position, yearend 1992**	**498,991**	**668,181**	**785,903**
2	Capital outflows, 1993	58,094	57,870	57,870
3	Equity capital	17,423	17,423	17,423
4	Increases	24,322	24,322	24,322
5	Decreases	6,898	6,898	6,898
6	Intercompany debt	10,882	10,882	10,882
7	U.S. parent receivables (increases +; decreases –)	14,694	14,694	14,694
8	U.S. parent payables (increases –; decreases +)	–3,811	–3,811	–3,811
9	Reinvested earnings	29,789	29,565	29,565
10	Valuation adjustments, 1993	–8,441	–9,888	149,378
11	Translation adjustments	–5,818	–10,344	–18,360
12	Other capital gains and losses	614	n.a.	n.a.
13	Price changes	n.a.	2,855	166,899
14	Other	–3,237	–2,399	839
15	**Position, yearend 1993 (line 1 + line 2 + line 10)**	**548,644**	**716,163**	**993,151**

n.a. Not applicable.

current-cost and market-value positions consist of translation adjustments, price changes, and other adjustments.

Translation adjustments reflect the effects of movements in exchange rates on the dollar value of affiliate assets and liabilities (on which the parent has a claim) between the periods for which the position is calculated. These adjustments are made to the position on all three valuation bases because all three require translation of foreign-currency-denominated affiliate assets (and liabilities) into dollars.

> EXAMPLE: A U.S. parent company has a wholly owned affiliate in the United Kingdom and the affiliate's assets are valued at £100 million, both at yearend *t* and yearend *t-1*. If, at yearend *t-1*, the exchange rate is £1=$2, the dollar value of the parent's position in the affiliate would be $200 million. If there are no direct investment capital flows in year *t*, but if at yearend *t*, the pound has strengthened to £1=$4, the dollar value of the parent's position would double during year *t* from $200 million to $400 million. In this case, the change in the parent's position would be fully accounted for by a $200 million translation adjustment made to reflect the rise in the investment's dollar value that resulted from the appreciation of the pound.

In the historical-cost position, *other capital gains and losses* represent the revaluation of the assets (on which the parent has a claim) of ongoing affiliates for reasons other than exchange-rate changes. Other capital gains and losses may occur for a variety of reasons, but they most commonly result from the partial sale of an affiliate's assets for an amount different from the assets' historical cost.

> EXAMPLE: At yearend *t-1*, a U.S. parent's direct investment position in its French affiliate is $100 million—$80 million in an automobile assembly plant and $20 million in an engine plant. If the affiliate sells the engine plant in year *t* for $30 million, realizing a gain of $10 million, and then reinvests the sale proceeds in its assembly plant, a $10 million valuation adjustment (to reflect the gain) would be recorded to raise the direct investment position to $110 million.

In the current-cost and market-value positions, *price changes* represent the revaluation of the assets (on which the parent has a claim) of ongoing affiliates from one year's prices to the next.

Other valuation adjustments reflect any changes in the value of affiliates' assets (on which the parent has a claim) that are not reflected in capital flows or the preceding adjustments. For historical-cost estimates, these adjustments most commonly reflect capital gains and losses booked by *U.S. parents* when they sell their full interest in a foreign affiliate. For the current-cost and market-value estimates, they are also related to capital gains and losses on the sale of affiliate assets; however, rather than reflecting the full amount of the capital gain or loss, they only reflect any difference between the realized current value of the investment and what BEA had estimated it to be.

Financial and Operating Data

The financial and operating data provide a wide variety of indicators of the overall operations of U.S. MNC's and of the separate operations of U.S. parents and foreign affiliates. These data are collected to address questions about the economic impact of MNC's on home and host countries that cannot be addressed by the balance of payments data alone. Some of these questions—such as "How many people do U.S. MNC's employ in the United States or abroad?"—can be answered with a single data item. Others require several data items, perhaps in combination with data from outside sources; for example, "Are U.S. MNC's producing less of what they sell and becoming more reliant on outside suppliers?" To answer such questions, data are needed on the activities of U.S. MNC's as a whole, regardless of the U.S. parent's ownership share or the source of financing. Therefore, the foreign-affiliate financial and operating data are not adjusted for the percentage of U.S.-parent ownership.

Financial and operating data are separately tabulated for two foreign-affiliate groups: All foreign affiliates and *majority-owned foreign affiliates (MOFA's)*. MOFA's are foreign affiliates in which the combined ownership of all U.S. parents exceeds 50 percent. Some types of analysis require MOFA data. For example, MOFA data should be used when examining the distribution, between the United States and abroad, of the worldwide resources that U.S. parents control.[17] In addition, MOFA data must be used to analyze some aspects of affiliate operations because the necessary data items are not collected for other affiliates.

Financial and operating data include the following: (1) Balance sheets and income statements, (2) sales by type (such as goods or services) and destination (such as local or nonlocal), (3) employment and employee compensation, (4) U.S. merchandise trade, (5) technology, and (6) external financing (table 3). Each of these categories includes many more individual data items; for example, detailed components of the balance

17. Although effective control can sometimes be obtained with a minority interest, unambiguous control requires a majority interest.

sheet (inventories, net property, plant, and equipment, etc.) are available annually for MOFA's. The amount of additional detail available within many of the categories is much greater in benchmark survey years than in other years.

One of the most useful measures of U.S.-MNC operations, *gross product*, is derived from financial and operating data. U.S.-MNC gross product measures the value of goods and services produced by MNC's, either in the United States (U.S.-parent gross product) or abroad (MOFA gross product) (table 3).[18] For a firm, gross product (or value added) differs from sales because sales include the inputs that the company purchases from outsiders as well as what it produces itself.

MNC gross product estimates have a variety of uses. For instance, they can be used to measure the contribution of U.S.-parent and MOFA production (U.S.-parent and MOFA gross product) to total home- or host-country production (U.S.- or foreign-country GDP). In addition, the ratio of gross product to output (sales plus inventory changes) for parents and MOFA's measures the extent to which parents and MOFA's produce

18. Estimates for U.S. parents are available only in benchmark survey years, because the data items necessary to derive them are not collected in other years; estimates for MOFA's are available annually.

Table 3.—Selected Financial and Operating Data for Nonbank U.S. Parents, Foreign Affiliates, and MOFA's, 1989 and 1992

[Millions of dollars or thousands of employees, unless otherwise noted]

Selected data items	Latest benchmark survey data, covering 1989			Latest annual survey data, covering 1992		
	U.S. parents	All foreign affiliates	MOFA's	U.S. parents	All foreign affiliates	MOFA's
Balance sheet						
Assets	4,852,373	1,330,028	1,080,247	5,570,464	1,746,757	1,463,521
Liabilities	3,613,323	838,098	673,173	4,237,922	n.a.	925,800
Owners' equity	1,239,050	491,930	407,074	1,332,542	n.a.	537,721
Income statement						
Income	3,258,875	1,336,208	1,060,058	n.a.	n.a.	1,341,862
Costs and expenses	3,088,212	1,250,866	987,916	n.a.	n.a.	1,278,244
Net income	170,663	85,342	72,142	43,409	74,015	63,618
Sales by type and destination						
Total sales	3,136,837	1,284,894	1,019,966	3,353,017	1,578,683	1,298,532
Goods	2,204,073	n.a.	889,875	2,309,111	n.a.	1,113,043
Services	786,491	n.a.	109,631	897,209	n.a.	153,674
Investment income [1]	146,273	n.a.	20,461	146,697	n.a.	31,817
To U.S. customers	2,841,052	n.a.	114,719	n.a.	n.a.	130,518
Affiliated [2]	.....	n.a.	92,968	.....	n.a.	104,067
Unaffiliated	2,841,052	n.a.	21,751	n.a.	n.a.	26,451
To foreign customers	295,785	n.a.	905,247	n.a.	n.a.	1,168,015
Affiliated [2]	130,487	n.a.	153,198	n.a.	n.a.	220,087
Unaffiliated	165,298	n.a.	752,049	n.a.	n.a.	947,929
Employment and employee compensation						
Employment	18,765.4	6,622.1	5,114.0	17,617.2	6,727.5	5,359.8
Employee compensation	666,196	165,804	132,565	722,796	201,408	169,623
Compensation per hour of production workers in manufacturing (dollars)	n.a.	n.a.	10.37	n.a.	n.a.	n.a.
U.S. merchandise trade						
Exports	223,352	102,558	97,488	245,475	120,255	114,139
Imports	181,095	97,394	84,298	199,858	109,235	98,850
Technology						
Research and development funded by	59,925	n.a.	7,048	71,796	n.a.	10,159
Research and development performed by	82,227	n.a.	7,922	n.a.	n.a.	n.a.
External financial position of MOFA's						
Balance at close of year:						
Total external funds [3]	.....	.....	754,015	.....	.....	1,061,160
By provider:						
U.S. parents	.....	.....	215,929	.....	.....	306,272
Other U.S. persons	.....	.....	22,846	.....	.....	42,154
Persons in affiliate's country of location	.....	.....	401,854	.....	.....	535,597
Other foreign persons	.....	.....	113,385	.....	.....	177,137
Gross product	1,044,884	n.a.	319,994	n.a.	n.a.	363,696

n.a. Not available.

1. Some parents and MOFA's, primarily those in finance and insurance, include investment income in sales or gross operating revenues. Most parents and MOFA's not in finance or insurance consider investment income an incidental revenue source and include it in their income statements in a separate "other income" category, rather than in sales. BEA collects separate data on investment income to ensure that—where it is included in total sales—it is not misclassified as sales of services.

2. Sales among parents and affiliates that belong to the same MNC. Because U.S. parents represent the fully consolidated domestic operations of a U.S. MNC, they have no sales to affiliated U.S. persons.

3. External funds (debt and equity) exclude MOFA retained earnings; thus, they represent financing that is not internally generated.

MOFA Majority-owned foreign affiliate

what they sell rather than relying on outside suppliers.[19]

Frequently Asked Questions About U.S. MNC's

This section discusses some of the most frequently asked questions about U.S. MNC's—such as "Where are U.S. MNC's investing?" "Are U.S. companies shifting their operations abroad?" and "What portion of U.S. cross-border trade is between U.S. parents and their foreign affiliates?" This section identifies the various BEA data that can be used to address these and other questions, as well as the limitations of the data.

Where are U.S. MNC's investing?—The balance of payments and direct investment position data and the financial and operating data can both be used to measure the extent of U.S.-MNC investment in a particular country. The choice of data set depends on whether one wants to know the amount of funds that a country received from U.S. direct investors in a given period or cumulatively or whether one wants to know the size of U.S.-owned business operations in a country. If one wants to know the amount of funds that a country received during a given period from U.S. direct investors, capital outflows (a balance of payments data item) during that period would be the appropriate measure. If one wants to know the cumulative amount of funds that a country received from U.S. direct investors (together with any subsequent valuation adjustments), the direct investment position at yearend would be the appropriate measure. In 1992, for instance, the historical-cost U.S. direct investment position abroad was largest in the United Kingdom ($83 billion), Canada ($69 billion), and Germany ($34 billion). If, however, one wants to know the size of U.S.-owned business operations in a country, a financial and operating data item (such as employment, total assets, or property, plant, and equipment) or gross product of affiliates would be a good indicator. In 1992, for instance, affiliate employment was largest in the United Kingdom (917,000), Canada (873,000), and Mexico (661,000).

Direct investment capital flows passing through third countries—such as offshore financial centers—en route to their ultimate destination can cause the balance of payments and direct investment position data to be grossly out of proportion to the financial and operating data for those countries. In Bermuda, for example, the direct investment position was $26 billion in 1992, but affiliate employment was only 2,800; thus, U.S. parents had invested $9 million per affiliate employee in that country, compared with a worldwide average of $74,000. This anomaly occurs because direct investment capital flows (and thus the direct investment position) are attributed to the country of immediate destination, whereas the financial and operating data are always attributed to the country in which an affiliate's physical assets are located or in which its primary activity is carried out.

> EXAMPLE: A U.S. manufacturer sends $100 million to its holding-company affiliate in Panama, which, in turn, sends the funds to Germany to build a factory. The capital flow and position are recorded against Panama, because that is the country with which the U.S. company had a direct transaction. By contrast, the property, plant, and equipment (a financial and operating data item) associated with the new factory is recorded in Germany because that is where the U.S.-controlled operations are located and the funds are ultimately spent.

Except for the small group of countries that tend to serve as offshore financial centers, however, a host country's level of affiliate activity can usually be determined using either data set—the direct investment position or the financial and operating data.

What are the primary factors determining the location of manufacturing affiliates?—In choosing locations for their manufacturing affiliates, U.S. parents seek to optimize the conditions that will affect their return on investment. Two desirable conditions are access to large and prosperous markets and access to low-wage labor. Data on manufacturing affiliate employment and sales suggest that access to markets is the more important condition. In 1992, 65 percent of employment by manufacturing MOFA's was in relatively high-wage countries (table 4). In that same year (as in previous years), Europe was the most popular location for newly acquired or established affiliates. The popular notion that manufacturing affiliates are established abroad primarily in low-wage countries to produce for U.S. markets appears unfounded; in 1992, only 12 percent of sales by manufacturing MOFA's were to U.S. customers.[20]

19. For more information on the derivation and uses of U.S.-MNC gross product estimates, see "Gross Product of U.S. Multinational Companies, 1977–91," SURVEY 74 (February 1994): 42–63.

20. For a discussion of the factors determining the location of manufacturing MOFA's and for an analysis of shifts in their location among high-wage and low-wage countries during 1982–91, see "U.S. Multinational Companies: Operations in 1991," SURVEY 73 (July 1993): 47–49.

Table 4.—Employment and Wage Rates for Manufacturing MOFA's in High-Wage and Low-Wage Host Countries, 1992

	Average hourly wage rate, 1989 (dollars) [1]	Employment by manufacturing MOFA's	
		Thousands of employees	Share of sample total (percent) [2]
All sample countries	.....	3,067.0	100.0
High-wage-country sample [3]	.....	2,005.6	65.4
Australia	12.99	87.2	2.8
Belgium	16.04	69.6	2.3
Canada	16.71	386.4	12.6
France	15.69	201.7	6.6
Germany	17.03	398.0	13.0
Ireland	10.17	39.3	1.3
Italy	16.73	108.1	3.5
Japan	20.89	82.2	2.7
Netherlands	18.39	80.3	2.6
Spain	10.81	88.3	2.9
Sweden	18.69	16.3	.5
Switzerland	17.86	21.0	.7
United Kingdom	12.11	427.2	13.9
Low-wage-country sample [3]	.....	1,061.4	34.6
Argentina	3.49	32.6	1.1
Brazil	4.17	252.0	8.2
Colombia	3.87	20.1	.7
Hong Kong	2.98	36.4	1.2
Korea, Republic of	4.44	18.6	.6
Malaysia	1.78	71.8	2.3
Mexico	2.28	372.8	12.2
Philippines	1.50	53.5	1.7
Portugal	5.60	14.5	.5
Singapore	3.13	67.2	2.2
South Africa	4.47	14.5	.5
Taiwan	4.55	37.0	1.2
Thailand	1.11	36.1	1.2
Venezuela	3.59	34.3	1.0
Addendum:			
Non-sample countries	.....	206.8	.....

1. Average hourly wage paid to production workers of MOFA's, 1989.
2. To ensure the statistical significance of the data underlying the distinction between "high-wage" and "low-wage" countries, the analysis is restricted to a sample of host countries having the largest presence of manufacturing MOFA's, based on the 1989 benchmark survey of U.S. direct investment abroad. To be included in the sample, a country must have hosted manufacturing MOFA's that together had at least 10,000 employees in that year; such countries accounted for roughly 95 percent of all employment by manufacturing MOFA's in that year.
3. The distinction between "high-wage" and "low-wage" countries is based on estimates of average hourly wages of production workers of manufacturing MOFA's from the 1989 benchmark survey. High-wage countries are defined as those with average hourly wages higher than $9.30 (the unweighted average hourly wage in 1989 of all countries included in the sample), and low-wage countries are defined as those with average hourly wages lower than that level.
MOFA Majority-owned foreign affiliate

Are U.S. MNC's shifting production (and employment) abroad?—Gross product and employment data for U.S. parents and MOFA's can be summed to measure the global production and employment of MNC's over which U.S. parents exert unambiguous control. Changes in the U.S.-parent share of these measures indicate changes in the domestic (U.S.) share of worldwide U.S.-MNC production. On the whole, only slight changes have occurred over the last decade. Between 1982 and 1989 (the latest year for which data are available), the U.S.-parent share of worldwide U.S.-MNC gross product edged down 1 percentage point to 77 percent, as a decrease in manufacturing was largely offset by an increase in other industries (table 5).[21] Between 1982 and 1992, the U.S.-parent share of worldwide U.S.-MNC employment declined 2 percentage points to 77 percent (table 6).

Some analysts have wondered whether it would be possible for U.S. MNC's to shift some foreign-affiliate production *back to* the United States; that is, to what extent can exports by U.S. parents substitute for affiliate production? Such questions cannot be answered using BEA (or other) data alone; the answers depend on what would happen in the absence of foreign-affiliate production, which is unknown. To address these questions, therefore, analysts must use BEA data in combination with *assumptions* about the relationship between parent and affiliate production. However, this relationship may be quite variable from one MNC to another: For some firms, domestic and foreign production may be equally

21. For further discussion of these changes, see "Gross Product of U.S. Multinational Companies, 1977–91," SURVEY 74 (February 1994): 42–63.

Table 5.—Gross Product of Nonbank U.S. MNC's, U.S. Parents, and MOFA's, by Industry of Parent, 1982 and 1989

	Millions of dollars						Share of U.S. parents in worldwide MNC total (percent)	
	MNC's worldwide		U.S. parents		MOFA's			
	1982	1989	1982	1989	1982	1989	1982	1989
All industries	1,019,734	1,364,878	796,017	1,044,884	223,717	319,994	78	77
Manufacturing	542,689	793,771	421,050	586,568	121,639	207,203	78	74
Other	477,045	571,107	374,967	458,316	102,078	112,791	79	80

MNC Multinational company
MOFA Majority-owned foreign affiliate

Table 6.—Employment by Nonbank U.S. MNC's, U.S. Parents, and MOFA's, by Industry of Parent, 1982 and 1992

	Thousands of employees						Share of U.S. parents in worldwide MNC total (percent)	
	MNC's worldwide		U.S. parents		MOFA's			
	1982	1992	1982	1992	1982	1992	1982	1992
All industries	23,727.0	22,977.0	18,704.6	17,617.2	5,022.4	5,359.8	79	77
Manufacturing	14,247.3	13,094.4	10,532.8	9,307.4	3,714.5	3,787.0	74	71
Other	9,479.7	9,882.6	8,171.8	8,309.8	1,307.9	1,572.8	86	84

MNC Multinational company
MOFA Majority-owned foreign affiliate

viable alternatives, while for others, it may be possible to compete effectively abroad or to sustain domestic operations only if at least some output is produced overseas. Results of analyses of the impact of USDIA have thus varied widely, both in magnitude and direction, depending upon the assumptions chosen and methods of analysis used.[22]

What percentage of U.S. merchandise trade is accounted for by U.S. MNC's?—Because U.S. parents have a significant presence in the U.S. economy and because they account for many of the largest and most globally oriented U.S. firms, they naturally account for a large share of U.S. merchandise trade. U.S.-MNC-associated merchandise trade encompasses (1) intra-MNC trade, or trade between U.S. parents and their foreign affiliates, and (2) MNC trade with others, or trade between U.S. parents and unaffiliated foreigners and trade between foreign affiliates and unaffiliated U.S. persons. In 1992, U.S.-MNC-associated trade accounted for 58 percent of U.S. merchandise exports and for 41 percent of U.S. merchandise imports. Intra-MNC trade accounted for 23 percent of U.S. merchandise exports and 17 percent of U.S. merchandise imports (table 7). (A significant share of the remaining trade is associated with U.S. affiliates of foreign MNC's.[23])

Through what channels do U.S. MNC's serve foreign markets?—Despite their large share of U.S. merchandise exports, the ultimate delivery of goods and services to foreign markets by U.S. MNC's is primarily through sales by affiliates rather than through U.S. exports. Of all U.S.-MNC sales to unaffiliated foreigners in 1992, 85 percent were sales by MOFA's and the remainder were exports by U.S. parents (table 8).[24] The dominance of sales by MOFA's reflects many factors, such as the following: (1) Many sales to foreigners would not be feasible through exporting from the United States, because of trade barriers and transportation costs, (2) sales of many services (such as lodging) require a local presence, and (3) MOFA's are often better positioned than their parents to design, manufacture, distribute, and service products for the special requirements of the host-country markets. Recognition of the size and significance of sales by MOFA's has spurred recent work on the development of supplemental

22. See, for example, G.C. Hufbauer and F.M. Adler, *Overseas Manufacturing Investment and the Balance of Payments*, U.S. Treasury Department Tax Policy Research Study No. 1 (Washington, DC: U.S. Government Printing Office, 1968); United States Senate Committee on Finance, *Implications of Multinational Firms for World Trade and Investment and for U.S. Trade and Labor* (Washington, DC: U.S. Government Printing Office, 1973); and Robert E. Lipsey, "Outward Direct Investment and the U.S. Economy," National Bureau of Economic Research Working Paper No. 4691 (March 1994).

23. For a discussion of the pattern of U.S. affiliates' trade in 1977–91, see "Merchandise Trade of U.S. Affiliates of Foreign Companies," SURVEY 73 (October 1993): 52–65.

24. These ratios understate the role of U.S.-parent exports in serving foreign markets, to some extent, because all U.S.-parent exports to MOFA's (table 8, lines 2 and 4) are counted as MOFA sales (table 8, line 9). When a MOFA simply resells goods and services received from its U.S. parent, credit for the sale is, in effect, accorded to the MOFA; yet, in many, if not most, such cases, the MOFA is merely an intermediary that facilitates sales by its U.S. parent.

Table 7.—U.S. Merchandise Trade Associated with Nonbank U.S. MNC's, 1992

[Millions of dollars]

	1992
MNC-associated U.S. exports, total	**261,051**
Intra-MNC trade	**104,679**
Shipped by U.S. parents to MOFA's	99,140
Shipped by U.S. parents to other foreign affiliates	5,539
MNC trade with others	**156,372**
Shipped by U.S. parents to other foreigners	140,796
Shipped to foreign affiliates by other U.S. persons	15,576
To MOFA's	14,999
To other foreign affiliates	577
MNC-associated U.S. imports, total	**216,479**
Intra-MNC trade	**92,614**
Shipped by MOFA's to U.S. parents	85,139
Shipped by other foreign affiliates to U.S. parents	7,475
MNC trade with others	**123,865**
Shipped by other foreigners to U.S. parents	107,244
Shipped by foreign affiliates to other U.S. persons	16,621
By MOFA's	13,711
By other foreign affiliates	2,910
Addenda:	
All U.S. merchandise exports	448,166
MNC-associated U.S. exports as a percentage of total	58
Intra-MNC exports as a percentage of total	23
All U.S. merchandise imports	532,663
MNC-associated U.S. imports as a percentage of total	41
Intra-MNC imports as a percentage of total	17

MNC Multinational company
MOFA Majority-owned foreign affiliate

Table 8.—Channels for Delivering Goods and Services to Foreign Markets by Nonbank U.S. MNC's, 1992

[Millions of dollars]

Line		1992
	Cross-border sales to unaffiliated foreigners by U.S. parents:	
1	Cross-border merchandise exports	245,475
2	*Less*: Merchandise exports to foreign affiliates	104,679
3	*Plus*: Sales of services to foreigners	35,651
4	*Less*: Sales of services to foreign affiliates	7,290
5	*Equals*: Cross-border sales to unaffiliated foreigners	169,157
	Sales to unaffiliated foreigners by MOFA's:	
6	Total sales	1,298,532
7	*Less*: Sales to other foreign affiliates	220,087
8	*Less*: Sales to the United States	130,518
9	*Equals*: Sales to unaffiliated foreigners	947,927
10	Total sales to unaffiliated foreigners by U.S. MNC's (line 5 + line 9)	1,117,084
	Addenda:	
	Share of total sales to unaffiliated foreigners by U.S. MNC's (percent):	
11	Cross-border sales by U.S. parents ((line 5/line 10) * 100)	15
12	Sales by MOFA's ((line 9/line 10) * 100)	85

MNC Multinational company
MOFA Majority-owned foreign affiliate

balance of payments accounts that more fully incorporate, or more fully illustrate, the returns to U.S. persons from sales by MOFA's.[25]

What is the investment climate in a particular foreign country?—BEA does not collect information on the investment climate or other aspects of the host countries for USDIA. Other public and private sources provide this type of information. For example, the International Trade Administration (ITA)—a separate agency of the U.S. Department of Commerce—provides summaries of foreign market conditions.[26] Additionally, some private consulting firms produce extensive information on doing business in foreign countries.

How much do U.S. MNC's spend to acquire or establish affiliates in a particular foreign country?—At present, BEA does not collect data on outlays by U.S. MNC's to establish or acquire affiliates in foreign countries. Direct investment capital flows capture only the portion of these investments that are funded by U.S. parents; they do not measure funds from other sources, such as funds supplied by foreign affiliates, that are used to establish or acquire new affiliates. Moreover, these flows are not always attributed to their ultimate country of destination. For these reasons, direct investment capital outflows should not be used as a proxy for gross spending on new investments by U.S. MNC's in a particular country.

On the basis of financial and operating data, new foreign affiliates are identified each year, and a summary of their distribution by area and by industry, as measured by their assets or employment, is presented in the SURVEY.[27] However, these data do not indicate the amount of U.S. MNC's initial investments in these affiliates.

Data Presentation

Confidentiality

Information collected by BEA is protected against public disclosure by the International Investment and Trade in Services Survey Act (P.L. 94–472, 90 Stat. 2059, 22 U.S.C. 3101–3108, as amended), which provides the legal authority for BEA's investment surveys. Under the act, information collected by BEA cannot be published or released in such a manner that the person or company that furnished it can be specifically identified.[28] Furthermore, the information collected may be used only for statistical and analytical purposes. Use of an individual company's data for tax, investigative, or regulatory purposes is prohibited. Ensuring confidentiality is essential to securing the cooperation of respondents and maintaining the integrity of the statistical system.

To ensure confidentiality, the data are aggregated and then tested before publication to determine if they should be shown or if they should be suppressed. In the published tables, "(D)" is placed in any data cell that might disclose individual company data. The published data are sufficient for most types of analysis, but BEA can make special tabulations, or perform regressions on the company-specific data, at cost, within the limits of available resources and subject to the legal requirements to avoid disclosure of data of individual companies.[29]

Industry classification

BEA classifies U.S.-MNC activities into 135 International Surveys Industry (ISI) groups adapted from the *Standard Industrial Classification (SIC) Manual, 1987*, the all-inclusive industry classification system used in Federal economic statistics. To facilitate the comparison of MNC data with data that are classified according to the SIC, BEA has prepared a concordance between its ISI codes and the corresponding SIC codes (table 9).

The precision of industry-level MNC data may be limited by the degree of consolidation in U.S.-parent and foreign-affiliate data. U.S.-parent and foreign-affiliate data are not collected for individual *establishments* (or plants) or even for individual business *enterprises* (or companies), which may consist of a number of establishments.[30] Rather, they are collected for a group of

25. See "Alternative Frameworks for U.S. International Transactions," SURVEY 73 (December 1993): 50–61.

26. For details, call the ITA's Trade Development unit at (202) 482–1461.

27. "U.S. Multinational Companies: Operations in 1992," SURVEY 74 (June 1994): 45.

28. BEA frequently receives requests for the names of U.S. MNC's, but the act prohibits it from providing the information. Such requests are sometimes directed to private sources that have produced publicly available directories of U.S. MNC's. One such publication is the *Directory of American Firms Operating in Foreign Countries* 13th ed. (New York, NY: Uniworld Business Publications, Inc., 1994), which provides a list of the names and addresses of U.S. companies that have foreign affiliates, by host country. Additionally, the *International Directory of Corporate Affiliations* (New Providence, NJ: National Register Publishing Company, 1994) provides a list of the names and addresses of major companies worldwide that have foreign affiliates, by company.

29. Data users requiring special tabulations should submit their requests in writing, including a justification of need, and BEA will consider each request on a case-by-case basis. Requests for, or questions about, special tabulations should be directed to the International Investment Division (BE-50), Data Retrieval and Analysis Branch, Bureau of Economic Analysis, U.S. Department of Commerce, Washington, DC 20230.

30. A business establishment is a business or industrial unit at a single geographic location (such as a sporting goods store) that produces or distributes goods or performs services.

A business enterprise is a business organization consisting of one or more establishments that are part of the same legal entity (such as a company-owned chain of sporting goods stores). A *consolidated business enterprise* is

Table 9.—International Surveys Industry (ISI) Categories and the Corresponding 1987 Standard Industrial Classification (SIC) Categories

Industry	Corresponding 1987 SIC code
Petroleum:	
Oil and gas extraction:	
Crude petroleum extraction (no refining) and natural gas	132 and part of 131
Oil and gas field services	138
Petroleum and coal products:	
Integrated petroleum refining and extraction	Part of 131 and part of 291
Petroleum refining without extraction	Part of 291
Petroleum and coal products, nec	295 and 299
Petroleum wholesale trade	517
Other:	
Petroleum tanker operations	Part of 44
Petroleum and natural gas pipelines	4612, 4613, and part of 492
Petroleum storage for hire	Part of 4226
Gasoline service stations	554
Manufacturing:	
Food and kindred products:	
Grain mill and bakery products:	
Grain mill products	204
Bakery products	205
Beverages	208
Other:	
Meat products	201
Dairy products	202
Preserved fruits and vegetables	203
Other food and kindred products	206, 207, and 209
Chemicals and allied products:	
Industrial chemicals and synthetics	281, 282, and 286
Drugs	283
Soap, cleaners, and toilet goods	284
Agricultural chemicals	287
Chemical products, nec	285 and 289
Primary and fabricated metals:	
Primary metal industries:	
Ferrous	331, 332, and 339
Nonferrous	333, 334, 335, and 336
Fabricated metal products:	
Metal cans, forgings, and stampings	341 and 346
Cutlery, hand tools, and screw products	342 and 345
Heating and plumbing equip. and structural metal prod.	343 and 344
Fabricated metal prod., nec, ordnance, and services	347, 348, and 349
Machinery, except electrical:	
Farm and garden machinery	352
Construction, mining, and materials handling machinery	353
Computer and office equipment	357
Other:	
Engines and turbines	351
Metalworking machinery	354
Special industry machinery	355
General industry machinery and equipment	356
Refrigeration and service industry machinery	358
Machinery, except electrical, nec	359
Electric and electronic equipment:	
Household appliances	363
Household audio and video, and communications equipment.	365 and 366
Electronic components and accessories	367
Electrical machinery, nec	361, 362, 364, and 369
Transportation equipment:	
Motor vehicles and equipment	371
Other	372, 373, 374, 375, 376, and 379
Other manufacturing:	
Tobacco products	21
Textile products and apparel:	
Textile mill products	22
Apparel and other textile products	23
Lumber, wood, furniture, and fixtures:	
Lumber and wood products	24
Furniture and fixtures	25
Paper and allied products:	
Pulp, paper, and board mills	261, 262, and 263
Other paper and allied products	265 and 267
Printing and publishing:	
Newspapers	271
Miscellaneous publishing	272, 273, 274, and 277
Commercial printing and services	275, 276, 278, and 279
Rubber products	301, 302, 305, and 306
Miscellaneous plastics products	308
Glass products	321, 322, and 323
Stone, clay, and other nonmetallic mineral products	324, 325, 326, 327, 328, and 329
Instruments and related products:	
Measuring, scientific, and optical instruments	381, 382, and 387
Medical instruments and supplies and opthalmic goods	384 and 385
Photographic equipment and supplies	386
Other:	
Leather and leather products	31
Miscellaneous manufacturing industries	39
Wholesale trade:	
Durable goods:	
Motor vehicles and equipment	501
Lumber and construction materials	503
Professional and commercial equipment and supplies	504
Metals and minerals	505
Electrical goods	506
Hardware, plumbing, and heating equipment and supplies	507
Machinery, equipment and supplies, nec	508
Durable goods, nec	502 and 509
Nondurable goods:	
Paper and paper products	511
Drugs, proprietaries, and sundries	512
Apparel, piece goods, and notions	513
Groceries and related products	514
Farm-product raw materials	515
Nondurable goods, nec	516, 518, and 519
Banking	6011, 602, 608, and 6712
Finance (except banking), insurance, and real estate:	
Finance, except banking:	
Savings institutions and credit unions	603 and 606
Business franchising	6794
Other	609, 61, 62, and 67 (except 671, 6732, part of 6794, and 6798)
Insurance:	
Life insurance	631
Accident and health insurance	632
Other	633, 635, 636, 637, 639, and 64
Real estate	65 and 6798
Holding companies	6719
Services:	
Hotels and other lodging places	70
Business services:	
Advertising	731
Equipment rental (excluding automotive and computers)	735
Computer and data processing services:	
Computer processing and data preparation services	7374
Information retrieval services	7375
Computer related services, nec	737 (except 7374 and 7375)
Business services, nec:	
Services to buildings	734
Personnel supply services	736
Other	732, 733, and 738
Automotive rental and leasing	751
Motion pictures, including television tape and film	78
Health services	80 and part of 8741
Engineering, architectural, and surveying services	871
Management and public relations services	874 (except part of 8741)
Other:	
Automotive parking, repair, and other services	75 (except 751)
Miscellaneous repair services	76
Amusement and recreation services	79
Legal services	81
Educational services	82
Accounting, auditing, and bookkeeping services	872
Research, development, and testing services	873 (except 8733)
Other services provided on a commercial basis	72, 83, 84, 86, and 89
Other industries:	
Agriculture, forestry, and fishing:	
Agricultural production—crops	01
Agricultural production—livestock	02
Agricultural services	07
Forestry	08
Fishing, hunting, and trapping	09
Mining:	
Metal mining:	
Iron ores	101
Copper, lead, zinc, gold, and silver ores	102, 103, and 104
Other metallic ores	106 and 109
Metal mining services	108
Nonmetallic minerals:	
Coal	122 and 123
Coal mining services	124
Nonmetallic minerals, except fuels	14 (except 148)
Nonmetallic minerals services, except fuels	148
Construction	15, 16, and 17
Transportation:	
Railroads	401
Water transportation	Part of 44
Transportation by air	45
Pipelines, except petroleum and natural gas	4619
Passenger transport arrangement	472
Transportation and related services, nec	41, 42 (except part of 4226), and 47 (except 472)
Communication and public utilities:	
Telephone and telegraph communications	481 and 482
Other communications services	483, 484, and 489
Electric, gas, and sanitary services	49 (except part of 492)
Retail trade:	
General and merchandise stores	53
Food stores	54
Apparel and accessory stores	56
Eating and drinking places	58
Retail trade, nec	52, 55 (except 554), 57, and 59

nec Not elsewhere classified.

enterprises under common control (referred to as "a consolidated business enterprise"). Enterprises can be consolidated to different degrees.[31] U.S.-parent-company data tend to be more consolidated than foreign-affiliate data; U.S. parents represent the fully consolidated domestic operations of a U.S. MNC. The data for highly diversified U.S. parent companies may include a wide variety of activities conducted by many different establishments. Foreign-affiliate data tend to be less consolidated because under BEA's reporting requirements, foreign-affiliate operations can be consolidated only if they are in the same country and in the same three-digit industry or if they are integral parts of the same business operation.

> EXAMPLE: A U.S. company's German unit A manufactures tires and a majority of its sales are to its German unit B, which assembles automobiles. In this case, units A and B may be consolidated into one foreign affiliate. If the two units' operations are unrelated (such as an insurance company and a tire manufacturer), then each is recorded as a separate affiliate with its own industry classification.

In most tabulations, all of the operations of a given U.S. parent or foreign affiliate are assigned to one primary industry, even if the parent or affiliate has secondary activities in other industries. The primary industry is assigned in the following manner:

(1) A U.S. parent or foreign affiliate is first classified in the major industry that accounts for the largest percentage of its sales. The major industry groups used for this purpose are (a) agriculture, forestry, and fishing, (b) mining, (c) petroleum, (d) construction, (e) manufacturing, (f) transportation, communication, and public utilities, (g) wholesale trade, (h) retail trade, (i) finance, insurance, and real estate, and (j) services.

(2) Within the major industry group, the parent or affiliate is classified in the two-digit ISI subindustry in which its sales are largest.

(3) Within this two-digit industry, the parent or affiliate is classified in the three-digit ISI subindustry in which its sales are largest.

This procedure ensures that the parent or affiliate is not assigned to a three-digit subindustry that is outside its major industry group.

The following example illustrates the three-stage classification procedure. Suppose a parent's or an affiliate's sales were distributed as follows:

Industry code	Sales (Percentages of total)		
351	55	30	5
352			10
353			15
367		25	
508	45		

where industry codes 351, 352, 353, and 367 are in manufacturing and code 508 is in wholesale trade. Because 55 percent of the parent's or affiliate's sales were in manufacturing and only 45 percent were in wholesale trade, the parent's or affiliate's major industry is manufacturing. Because 30 percent of its sales within manufacturing were in two-digit industry 35 (nonelectrical machinery)—that is, the sum of the percentages in 351, 352, and 353 is 30 percent—and 25 percent were in two-digit industry 36 (electrical machinery), the parent's or affiliate's two-digit industry is 35. Finally, because its sales within industry 35 were largest in subindustry 353, the parent's or affiliate's three-digit subindustry is 353. Thus, the three-stage classification procedure results in the parent or affiliate being assigned to subindustry 353, even though its sales in that subindustry were smaller than its sales in either subindustries 508 or 367.

Consolidating diverse activities into one primary industry weakens the precision of industry-level data for parents and affiliates, but the degree of imprecision depends on the number of different activities that are consolidated. For this reason, the industrial classifications of U.S. parents tend to be less precise than those of foreign affiliates.

Tabulating data on the parents' and affiliates' sales by industry of sales, rather than by industry of affiliate, yields greater precision. BEA collects sales data by three-digit ISI code for each of a U.S. parent's eight largest industries of sales and for each of a foreign affiliate's five largest industries of sales. When classified this way, a parent's or affiliate's sales in secondary industries are shown in those industries rather than in the parent's or affiliate's primary industry.

Several key data items for affiliates (such as assets, sales, and employment) are tabulated by *industry of U.S. parent* as well as by industry of affiliate in BEA's published data. Nonduplicative affiliate data (such as gross product, capital expenditures, or employment) by industry of parent can be added to parent data by industry in

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a group of enterprises under common ownership or control. For example, a corporate conglomerate consisting of a holding company and its majority-owned manufacturing and financial services subsidiaries is a consolidated business enterprise.

31. For example, suppose a corporation called "Acme Inc." owns an ice cream manufacturing company (with several plants, or establishments) and a wholesale distribution subsidiary (with multiple depots, or establishments). All three business entities are enterprises, but Acme Inc. is the most consolidated.

order to obtain data on the worldwide operations of U.S. MNC's by industry of parent.

> EXAMPLE: A U.S. automobile manufacturer has an affiliate A in the United Kingdom that assembles automobiles, an affiliate B in Canada that casts automobile wheel rims, and an affiliate C in Mexico that manufactures automobile audio components. By industry of affiliate, data for affiliate A would be classified in motor vehicles and equipment manufacturing; those for affiliate B, in metal cans, forgings, and stampings manufacturing; and those for affiliate C, in audio, video, and communications equipment manufacturing. By industry of U.S. parent, however, data for all three affiliates would be classified in motor vehicles and equipment manufacturing.

Table formats

U.S.-MNC data are presented in a variety of table formats in order to provide the fullest possible detail by country and by industry, while ensuring the confidentiality of company-specific information. For foreign affiliates, BEA publishes tables on selected data items (such as the direct investment position and affiliate employment) that show each country in which there is USDIA, along with regional subtotals (but with no cross-classification by industry). Likewise, tables showing data by each three-digit ISI code, along with two-digit subtotals (but with no cross-classification by country) are also published.[32] Tables showing data crossclassified by country and industry are less detailed; tables 13 and 14 (at the end of the article) illustrate the level of detail available.

Revision sequence

Preliminary estimates of the U.S.-MNC data are released as soon as the accuracy of the estimates can be reasonably ensured. Preliminary balance of payments flow estimates for a quarter are released 10 weeks after the end of the quarter; preliminary annual financial and operating data are generally released 1½ years after the end of a year (table 10). The data are then periodically revised as reported data are substituted for BEA estimates of missing data or as reported data are revised.

Table 10.—Revision Sequence for U.S.-MNC Data Sets

Estimate	Usual release date
Balance of payments data:	
Quarterly releases:	
Preliminary estimate	10 weeks after end of quarter [1]
First revision	22 weeks after end of quarter [1]
Annual releases [2]:	
Preliminary estimate	10 weeks after end of year [1]
First revision	6 months after end of year
Second revision	1 1/2 years after end of year
Third revision	2 1/2 years after end of year
Benchmark revision	Approximately 3 1/2 years after end of benchmark survey year
Financial and operating data:	
Preliminary estimate	1 1/2 years after end of year [3]
Final estimate	2 1/2 years after end of year [3]

1. This is a press release date. The data are subsequently published in the SURVEY OF CURRENT BUSINESS; see table 11 for details.
2. In annual and benchmark revisions, all quarters for the year are revised.
3. In benchmark survey years and immediately following years, data are generally released 1 to 4 months later.

32. Balance of payments and direct investment position data are shown in these formats in an annual article in the SURVEY (usually in the August issue) that presents detail for historical-cost position and related capital and income flows. Financial and operating data are shown in these formats in separate publications (see "Data Availability").

Table 11.—U.S.-MNC Data Series: Types of Information and Publications

U.S-MNC data series	Types of information	SURVEY OF CURRENT BUSINESS articles and related publications
Balance of payments and direct investment position data	Direct investment income; royalties and license fees; and other services transactions between U.S. parents and their foreign affiliates; direct investment capital flows; and the direct investment position.	Quarterly data on direct investment capital, income, and other flows appear in the March, June, September, and December SURVEY articles on U.S. international transactions. Annual direct investment position data appear in the June SURVEY article on the direct investment positions on a historical-cost basis. Detailed annual data on the position and related capital, income, and other flows between parents and affiliates generally appear in the August SURVEY. Some historical data are available in separate BEA publications (see table 12). [1]
Financial and operating data	U.S. parents' and foreign affiliates' balance sheets and income statements; sales by type and destination; employment and employee compensation; U.S. merchandise trade; gross product (value added) [2]; and technology. Also external financing for MOFA's.	Summary annual financial and operating data appear in articles on U.S. multinational companies' operations, usually in the June SURVEY. More detailed data appear in separate BEA publications (see table 12).

1. It should be noted, however, that the data prior to 1982 do not reflect certain definitional changes that BEA instituted in recent years. For details on these changes, see "U.S. Direct Investment Abroad: Detail for Position and Balance of Payments Flows, 1989," SURVEY 70 (August 1990): 57 and "U.S. International Transactions: First Quarter 1992 and Revised Estimates for 1976-91," SURVEY 72 (June 1992): 70-77.

2. U.S. parent gross product data are only available in the benchmark survey years of 1977, 1982, and 1989.

MNC Multinational company
MOFA Majority-owned foreign affiliate

Data availability

BEA makes its U.S.-MNC data available through a variety of media: In publications (both in the SURVEY and in separate data publications), on diskette, on CD-ROM (the National Trade Data Bank CD-ROM), and on the Internet.[33] Table 11 summarizes the availability of published BEA data on U.S. MNC's, and table 12 provides ordering information for specific publications and diskettes. Additionally, a comprehensive list of articles, publications, and diskettes on direct investment is available from the International Investment Division, Bureau of Economic Analysis, U.S. Department of Commerce, BE-50, Washington, DC 20230.

Tables 13 and 14 follow.

33. Full issues of the SURVEY, individual Survey articles on MNC's, and the data from the National Trade Data Bank CD-ROM are on STAT-USA's World Wide Web system, which is available for a modest subscription fee. To access this information, go to http://www.stat-usa.gov/BEN/Services/beahome.html. For further information, contact the STAT-USA Help Line on (202) 482–1986.

Table 12.—Ordering Information for BEA Publications and Diskettes on U.S. MNC's

Year(s) covered	Title	Publication			Diskette	
		Source	Acession or stock number	Price	BEA accession number	Price
	Balance of payments and direct investment position data					
1950–76	Selected Data on U.S. Direct Investment Abroad, 1950–76	NTIS	PB87–121869	$36.50		
1977–81	U.S. Direct Investment Abroad: Balance of Payments and Direct Investment Position Estimates, 1977–81.	NTIS	PB87–178265	$19.50		
1982–93	U.S. Direct Investment Abroad: Balance of Payments and Direct Investment Position Estimates, computer printout (annual).	BEA	50–94–20–577	$10.00 per year		
1989–93	U.S. Direct Investment Abroad: Balance of Payments and Direct Investment Position Estimates, 1989–93.	BEA	.....	.....	50–94–40–577	$20.00
	Financial and operating data					
1977	U.S. Direct Investment Abroad, 1977	NTIS	PB82–130634	$61.00		
1982	U.S. Direct Investment Abroad, 1982 Benchmark Survey Data	NTIS	PB86–169117	$52.00		
	U.S. Direct Investment Abroad: Operations of U.S. Parent Companies and Their Foreign Affiliates:					
1983	Revised 1983 Estimates	BEA	50–86–10–103	$5.00	50–86–40–403	$20.00
1984	Revised 1984 Estimates	BEA	50–87–10–103	$5.00	50–87–40–409	$20.00
1985	Revised 1985 Estimates	BEA	50–88–10–103	$5.00	50–88–40–403	$20.00
1986	Revised 1986 Estimates	NTIS	PB90–114125	$19.50	50–89–40–403	$20.00
1987	Revised 1987 Estimates	NTIS	PB90–258898	$19.50	50–90–40–403	$20.00
1988	Revised 1988 Estimates	NTIS	PB92–101583	$19.50	50–91–40–403	$20.00
1989	U.S. Direct Investment Abroad, 1989 Benchmark Survey, Final Results	GPO	003–010–00234–4	$25.00	50–92–40–403	$20.00
	U.S. Direct Investment Abroad: Operations of U.S. Parent Companies and Their Foreign Affiliates:					
1990	Revised 1990 Estimates	BEA	50–93–10–103	$6.50	50–93–40–403	$20.00
1991	Revised 1991 Estimates	GPO	003–010–00247–6	$6.50	50–94–40–403	$20.00
1992	Preliminary 1992 Estimates	GPO	003–010–00245–0	$6.50	50–94–40–404	$20.00

NOTE.—To place an order, use the forms found in the appendix to "User's Guide to BEA Information," SURVEY 75 (January 1995).
MNC Multinational company

BEA Bureau of Economic Analysis
GPO U.S. Government Printing Office
NTIS National Technical Information Service

Table 13.—Employment of Nonbank Foreign Affiliates, Country by Industry of Affiliate, 1992

[Thousands]

	All industries	Petroleum	Manufacturing								Wholesale trade	Finance (except banking), insurance, and real estate	Services	Other industries
			Total	Food and kindred products	Chemicals and allied products	Primary and fabricated metals	Machinery, except electrical	Electric and electronic equipment	Transportation equipment	Other manufacturing				
All countries	6,727.5	230.2	4,006.5	495.1	587.1	198.9	507.2	557.0	738.7	922.4	550.8	150.3	569.1	1,220.8
Canada	872.7	25.0	406.5	(D)	48.0	31.6	26.3	32.4	(D)	111.8	74.4	28.5	69.9	268.4
Europe	2,790.9	76.7	1,666.3	167.3	264.8	86.9	279.1	166.5	313.8	387.9	307.1	72.5	336.4	331.9
Austria	22.1	1.0	(D)	1.5	.5	.4	.8	.7	4.2	(D)	6.6	.4	2.1	(D)
Belgium	111.5	2.1	74.9	10.1	21.0	3.5	7.0	5.6	(D)	(D)	16.9	1.4	12.9	3.2
Denmark	19.9	.6	7.6	2.0	1.6	.6	(*)	1.1	.4	1.8	7.1	.3	3.3	.9
Finland	8.4	.5	2.7	.1	.5	.1	.3	.1	0	1.6	3.7	(*)	.8	.8
France	402.3	6.1	222.1	14.6	42.4	8.4	(D)	20.1	(D)	70.3	61.9	5.1	83.9	23.3
Germany	581.7	13.6	418.6	23.5	49.9	26.0	70.1	(D)	(D)	81.4	44.3	4.9	36.1	64.2
Greece	11.3	.5	4.8	1.5	1.8	0	0	.3	0	1.3	3.6	.4	2.1	0
Ireland	43.5	.5	39.7	1.9	4.8	1.5	7.1	6.4	1.5	16.5	1.8	.4	.5	.5
Italy	176.8	4.0	114.1	10.8	25.0	3.1	24.9	13.2	15.0	22.1	24.8	2.1	9.4	22.4
Luxembourg	7.9	.1	6.3	0	0	.7	.4	.1	.3	4.8	.1	.1	.8	.6
Netherlands	145.1	8.4	84.9	12.6	17.8	7.5	(D)	9.5	1.8	(D)	18.0	(D)	21.3	(D)
Norway	21.3	(D)	4.0	.3	.4	(D)	.4	.2	0	(D)	(D)	.1	3.6	.9
Portugal	24.5	.4	15.1	3.9	3.5	.1	(D)	(D)	2.5	(D)	5.4	.2	2.6	.9
Spain	138.7	.8	102.0	16.3	20.2	3.3	7.2	9.3	(D)	(D)	16.0	2.2	6.7	11.1
Sweden	42.7	.6	(D)	1.0	2.6	(D)	6.5	.8	(D)	5.4	11.1	.4	2.2	(D)
Switzerland	53.2	.9	22.2	(D)	1.6	.6	2.0	1.4	.1	(D)	16.4	1.5	(D)	(D)
Turkey	21.6	1.4	15.8	2.1	2.6	1.0	.4	(D)	4.9	(D)	2.6	0	1.4	.4
United Kingdom	917.9	24.9	462.8	44.8	62.3	28.2	86.1	51.0	(D)	(D)	58.9	(D)	135.8	(D)
Other	40.5	(D)	(D)	(D)	6.4	0	.2	(D)	(D)	3.7	(D)	.1	(D)	3.2
Latin America and Other Western Hemisphere	1,395.1	29.5	997.3	161.4	147.3	47.4	54.9	163.4	206.0	216.9	41.9	14.2	67.9	244.2
South America	601.6	22.7	452.1	(D)	82.7	27.4	33.4	33.4	108.8	(D)	24.4	5.7	26.3	70.5
Argentina	61.0	4.0	41.6	12.9	9.9	1.2	.9	(D)	8.3	(D)	5.2	.8	1.9	7.4
Brazil	349.9	5.8	315.3	32.7	48.6	16.7	32.2	23.7	(D)	(D)	5.5	1.1	12.0	10.3
Chile	25.6	1.3	9.8	1.1	2.4	3.6	(*)	.4	0	2.3	4.9	2.9	2.2	4.5
Colombia	43.0	4.1	23.9	3.7	7.8	2.5	0	1.2	(D)	(D)	2.2	.5	3.5	8.8
Ecuador	9.9	.9	6.3	1.4	1.1	.7	0	.3	.5	2.3	.6	.1	0	2.0
Peru	12.9	1.7	3.4	1.1	1.3	.4	0	.1	0	.5	(D)	0	.5	(D)
Venezuela	91.9	4.3	48.0	(D)	11.4	2.2	.3	5.5	7.2	(D)	(D)	.3	6.1	(D)
Other	7.4	.5	3.7	(D)	.2	.2	0	(D)	0	.8	.2	.1	.1	2.8
Central America	746.7	3.9	528.8	91.7	61.6	20.1	21.5	129.8	97.2	106.9	14.5	6.4	(D)	(D)
Costa Rica	27.6	(*)	14.4	3.9	1.7	1.0	0	(D)	0	(D)	1.3	0	.1	11.8
Guatemala	11.4	.3	5.8	2.7	1.0	.3	0	0	0	1.9	.3	.2	.1	4.6
Honduras	22.0	.2	6.9	4.2	1.1	(*)	0	0	0	1.5	.3	.2	(*)	14.5
Mexico	661.0	1.6	493.7	79.4	56.4	18.4	21.5	126.6	97.2	94.2	11.2	5.7	(D)	(D)
Panama	19.5	1.1	3.9	.8	1.0	(*)	0	0	0	2.0	(D)	.2	.4	(D)
Other	5.2	.6	4.1	.6	.3	.4	0	(D)	0	(D)	(D)	.1	.1	(D)
Other Western Hemisphere	46.9	3.0	16.5	(D)	3.1	0	0	.2	0	(D)	3.0	2.1	(D)	(D)
Bahamas	8.0	.1	.4	.1	.3	0	0	0	0	.1	.1	.2	6.4	.8
Barbados	1.1	.2	.4	0	0	0	0	0	0	.4	.1	(*)	.4	0
Bermuda	2.8	.4	.1	(*)	0	0	0	0	0	(*)	.3	1.1	1.0	(*)
Dominican Republic	19.4	.1	(D)	(D)	.7	0	0	.1	0	(D)	.6	.2	.4	(D)
Jamaica	6.4	.2	2.6	0	.9	0	0	0	0	1.6	.9	.2	(D)	(D)
Netherlands Antilles	1.3	.3	.2	.1	.1	0	0	0	0	0	.1	(*)	.7	.1
Trinidad and Tobago	2.6	.7	1.0	.1	.7	0	0	0	0	.2	0	.4	.5	0
United Kingdom Islands, Caribbean	3.0	(*)	1.8	0	.4	0	0	.1	0	1.2	.9	.1	.3	(*)
Other	2.4	1.0	(D)	.1	0	0	0	0	0	(D)	.2	(*)	.4	(D)
Africa	124.1	16.6	64.7	(D)	10.7	6.1	6.0	2.6	(D)	(D)	6.7	.9	7.5	27.7
Egypt	14.1	1.4	7.0	(D)	1.8	.4	(D)	.5	(D)	0	1.0	(*)	(D)	(D)
Nigeria	10.6	5.1	2.7	.6	1.0	.2	0	(D)	(D)	0	2.4	.4	(*)	0
South Africa	39.1	(D)	31.2	.7	5.5	2.7	(D)	.6	1.0	(D)	1.8	0	.8	(D)
Other	60.4	(D)	23.8	3.9	2.4	2.9	.2	(D)	.4	(D)	1.5	.5	(D)	23.3
Middle East	50.0	7.0	19.1	(D)	5.3	1.8	.5	4.9	.4	(D)	1.9	.6	18.4	3.1
Israel	29.0	(D)	12.5	(D)	(D)	1.3	.5	4.7	.4	2.5	.4	.2	13.4	(D)
Saudi Arabia	13.2	1.7	6.2	.1	4.0	.5	0	.1	0	1.5	.3	(*)	4.5	.5
United Arab Emirates	3.1	1.3	.1	0	(*)	0	0	(*)	0	0	.9	.1	.4	.3
Other	4.6	(D)	.3	0	(D)	0	0	.1	0	(D)	.2	.3	.1	(D)
Asia and Pacific	1,466.9	63.0	852.6	110.7	110.9	25.1	140.5	187.2	105.3	172.9	118.8	33.6	69.0	329.9
Australia	366.2	9.1	110.3	(D)	18.6	5.7	9.2	5.5	(D)	23.5	(D)	4.9	27.3	(D)
China	32.4	.4	29.2	(D)	3.6	.3	2.1	(D)	(D)	2.0	2.1	(*)	.1	.7
Hong Kong	85.8	.7	53.5	(D)	1.3	(D)	4.9	(D)	.1	22.3	12.0	3.1	4.5	12.0
India	40.5	.8	36.4	.5	14.7	3.3	9.3	1.1	1.9	5.6	(D)	(*)	(D)	0
Indonesia	47.0	(D)	12.8	(D)	4.5	.6	.4	(D)	0	2.9	1.8	.6	.2	(D)
Japan	394.9	13.8	228.2	5.6	33.1	4.0	52.2	23.4	60.8	49.1	47.7	(D)	17.6	(D)
Korea, Republic of	53.9	(D)	37.4	4.5	4.4	.9	3.0	8.8	5.9	9.9	4.4	(D)	7.2	.8
Malaysia	84.3	3.3	72.6	.7	2.2	(D)	(D)	48.1	0	14.8	2.9	1.8	(D)	(D)
New Zealand	(D)	(D)	(D)	.3	(D)	.1	0	.2	(D)	12.5	3.1	.7	1.0	17.3
Philippines	87.9	(D)	79.6	40.0	9.7	2.3	.3	(D)	(D)	15.3	1.9	1.6	.5	(D)
Singapore	90.7	3.9	68.9	(D)	1.5	1.3	32.3	28.2	.9	(D)	5.8	(D)	3.8	(D)
Taiwan	57.7	.3	43.4	(D)	6.4	1.6	3.2	(D)	(D)	5.8	5.2	(D)	2.8	(D)
Thailand	73.1	3.1	57.1	(D)	3.3	1.8	(D)	8.3	0	5.0	5.2	1.9	1.6	4.2
Other	(D)	2.0	(D)	(D)	(D)	.1	(*)	.5	0	(D)	.6	.2	.1	(D)
International [1]	27.9	12.4												15.5
Addenda:														
Eastern Europe [2]	33.3	(D)	(D)	(D)	1.3	0	.2	(D)	.5	3.7	(D)	.1	.1	2.5
European Communities (12) [3]	2,581.2	62.1	1,552.7	142.1	250.2	82.8	268.5	149.9	294.1	365.1	258.9	70.1	315.3	322.1
OPEC [4]	182.3	36.3	76.2	17.2	22.1	4.2	.7	7.1	8.5	16.4	10.9	1.4	11.3	46.2

* Less than 50 employees.

D Suppressed to avoid disclosure of data of individual companies.

1. "International" affiliates are those that have operations in more than one country and that are engaged in petroleum shipping, other water transportation, or operating movable oil- and gas-drilling equipment.

2. "Eastern Europe" comprises Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Czechoslovakia, Estonia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Poland, Romania, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

3. European Communities (12) comprises Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, and the United Kingdom.

4. OPEC is the Organization of Petroleum Exporting Countries. Through yearend 1992, its members were Algeria, Ecuador, Gabon, Indonesia, Iran, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.

Table 14.—Employment of Nonbank Foreign Affiliates, Industry of Affiliate by Country, 1992

[Thousands]

	Total	Canada	Europe							Latin America and Other Western Hemisphere	Africa	Middle East	Asia and Pacific			International
			Total	Of which:									Total	Of which:		
				France	Germany	Italy	Netherlands	Switzerland	United Kingdom					Australia	Japan	
All Industries	6,727.5	872.7	2,790.9	402.3	581.7	176.8	145.1	53.2	917.9	1,395.1	124.1	50.0	1,466.9	366.2	394.9	27.9
Petroleum	230.2	25.0	76.7	6.1	13.8	4.0	8.4	.9	24.9	29.5	16.6	7.0	63.0	9.1	13.8	12.4
Oil and gas extraction	97.0	8.9	25.3	.2	1.2	.6	(D)	.2	11.6	12.3	8.8	5.6	29.8	4.0	(*)	6.2
Crude petroleum extraction (no refining) and natural gas	60.3	(D)	15.3	(*)	.7	(*)	(D)	(*)	4.5	4.7	(D)	2.6	24.1	(D)	0	
Oil and gas field services	36.7	(D)	10.0	.1	.5	.6	.4	.2	7.0	7.6	(D)	3.1	5.6	(D)	(*)	6.2
Petroleum and coal products	71.7	14.6	30.1	(D)	4.3	(D)	(D)	0	11.1	5.8	(D)	(D)	19.2	(D)	7.4	
Integrated petroleum refining and extraction	(D)	(D)	8.9	(D)	(D)	0	(D)	0	(D)	2.1	0	(D)	(D)	0	(D)	
Petroleum refining without extraction	36.9	(D)	19.8	(D)	(D)	(D)	2.2	0	(D)	1.8	(D)	0	13.7	(D)	5.3	
Petroleum and coal products, nec	(D)	.2	1.4	0	.3	.1	.1	0	0	1.9	.6	(*)	(D)	.1	(D)	
Petroleum wholesale trade	39.5	1.0	13.8	.8	(D)	.2	.4	.6	1.6	10.6	5.7	.2	8.3	(D)	2.8	
Other	21.9	.5	7.5	(D)	(D)	(D)	.4	.1	.7	.9	(D)	(D)	5.7	(*)	3.6	6.1
Manufacturing	4,006.5	406.5	1,666.3	222.1	418.6	114.1	84.9	22.2	462.8	997.3	64.7	19.1	852.6	110.3	228.2	
Food and kindred products	495.1	(D)	167.3	14.6	23.5	10.8	12.6	(D)	44.8	161.4	(D)	(D)	110.7	(D)	5.6	
Grain mill and bakery products	89.8	9.8	41.9	5.5	8.5	3.2	2.1	0	8.5	24.5	(D)	.1	(D)	(D)	.2	
Beverages	(D)	(D)	29.7	(D)	(D)	(D)	(D)	.5	11.3	28.1	1.5	0	(D)	(D)	1.8	
Other	(D)	28.7	95.7	(D)	(D)	(D)	(D)	(D)	25.1	108.8	(D)	(D)	43.3	9.7	3.6	
Chemicals and allied products	587.1	48.0	264.8	42.4	49.9	25.0	17.8	1.6	62.3	147.3	10.7	5.3	110.9	18.6	33.1	
Industrial chemicals and synthetics	173.3	19.0	75.8	8.6	17.2	5.2	11.0	.5	15.2	45.8	.4	2.4	30.0	(D)	10.4	
Drugs	187.0	11.1	93.0	(D)	14.1	11.1	1.8	.7	19.0	36.8	4.5	0	41.6	4.1	(D)	
Soap, cleaners, and toilet goods	149.4	9.1	62.5	6.9	(D)	5.3	2.4	.3	17.6	45.6	(D)	(D)	26.3	2.8	7.3	
Agricultural chemicals	10.7	.5	3.0	.6	0	.6	.2	0	.3	3.4	0	0	3.9	.3	.3	
Chemical products, nec	66.7	8.2	30.6	(D)	(D)	2.8	2.3	.2	10.2	15.9	(D)	(D)	9.3	(D)	(D)	
Primary and fabricated metals	198.9	31.6	86.9	8.4	26.0	3.1	7.5	.6	28.2	47.4	6.1	1.8	25.1	5.7	4.0	
Primary metal industries	54.6	10.3	17.8	1.3	4.0	1.4	2.7	(*)	4.8	15.9	2.7	.3	7.5	1.8	.6	
Ferrous	11.3	(D)	(D)	.7	(D)	(D)	(D)	(*)	1.8	1.0	(D)	0	3.0	(D)	.1	
Nonferrous	43.3	(D)	(D)	.6	(D)	(D)	(D)	0	2.9	14.9	(D)	.3	4.5	(D)	.4	
Fabricated metal products	144.4	21.3	69.1	7.1	22.0	1.7	4.8	.6	23.4	31.5	3.4	1.5	17.6	3.9	3.5	
Machinery, except electrical	507.2	26.3	279.1	(D)	70.1	24.9	(D)	2.0	86.1	54.9	6.0	.5	140.5	9.2	52.2	
Farm and garden machinery	(D)	.4	14.4	(D)	(D)	.1	0	0	4.9	(D)	0	0	.4	0	.2	
Construction, mining, and materials handling machinery	72.2	2.0	(D)	11.8	3.8	1.0	(D)	.4	8.0	9.0	(D)	0	24.5	1.8	13.0	
Computer and office equipment	235.2	14.7	127.0	(D)	35.4	(D)	9.6	.2	31.6	9.9	.1	.1	83.5	1.1	(D)	
Other	(D)	9.1	(D)	(D)	(D)	(D)	3.8	1.5	41.7	(D)	(D)	.4	32.2	6.4	(D)	
Electric and electronic equipment	557.0	32.4	166.5	20.1	(D)	13.2	9.5	1.4	51.0	163.4	2.6	4.9	187.2	5.5	23.4	
Household appliances	106.3	11.2	37.3	1.9	10.0	6.2	.2	(*)	15.4	42.0	0	0	15.9	2.1	0	
Household audio and video, and communication equipment	41.3	4.2	16.1	1.0	2.4	(D)	(D)	(*)	2.4	9.5	0	2.4	9.0	.9	0	
Electronic components and accessories	306.9	6.1	75.5	8.9	(D)	3.5	2.3	.5	21.8	72.5	0	2.5	150.2	.7	21.5	
Electrical machinery, nec	102.5	10.9	37.5	8.3	5.0	(D)	(D)	.8	11.4	39.4	2.6	(*)	12.0	1.8	1.9	
Transportation equipment	738.7	(D)	313.8	(D)	(D)	15.0	1.8	.1	(D)	206.0	(D)	.4	105.3	(D)	60.8	
Motor vehicles and equipment	706.9	(D)	302.8	14.0	(D)	(D)	1.7	.1	74.2	204.6	(D)	0	104.1	(D)	60.7	
Other	31.8	17.9	11.0	(D)	.4	(D)	.2	(*)	(D)	1.3	0	.4	1.2	.1	.1	
Other manufacturing	922.4	111.8	387.9	70.3	81.4	22.1	(D)	(D)	(D)	216.9	(D)	(D)	172.9	23.5	49.1	
Tobacco products	65.4	2.4	(D)	.4	(D)	1.1	(D)	(D)	(D)	(D)	10.2	0	4.2	(D)	0	
Textile products and apparel	106.4	11.0	39.3	8.5	8.4	1.1	1.4	0	10.8	30.5	0	0	25.6	3.4	1.3	
Lumber, wood, furniture, and fixtures	54.4	13.1	16.8	(D)	(D)	.4	.2	.1	(D)	10.9	(D)	0	(D)	.4	.3	
Paper and allied products	166.4	(D)	(D)	(D)	15.2	2.6	(D)	.2	(D)	42.3	.1	1.4	(D)	(D)	3.4	
Printing and publishing	34.1	8.6	(D)	(D)	1.1	.7	1.5	.2	8.9	(D)	.2	0	4.5	2.3	.3	
Rubber products	84.9	(D)	28.9	3.6	7.6	1.3	0	(*)	7.8	30.0	(D)	0	9.3	.2	1.7	
Miscellaneous plastics products	55.5	3.7	26.4	6.4	3.8	2.2	(D)	.2	4.5	14.2	.3	1.0	10.0	1.7	(D)	
Glass products	54.1	1.7	(D)	2.7	.8	(D)	.9	.1	(D)	18.6	(D)	.2	7.5	.1	(D)	
Stone, clay, and other nonmetallic mineral products	36.2	11.2	14.0	1.7	4.0	(D)	.6	(*)	3.2	5.5	0	.5	5.0	.8	1.6	
Instruments and related products	195.5	7.9	112.3	18.8	18.4	8.6	7.5	2.2	43.1	26.1	1.5	.4	47.3	6.6	(D)	
Other	69.6	(D)	32.9	5.3	10.1	.7	.3	.2	7.4	11.3	0	(D)	20.5	1.2	.6	
Wholesale trade	550.8	74.4	307.1	61.9	44.3	24.8	18.0	16.4	58.9	41.9	6.7	1.9	118.8	(D)	47.7	
Durable goods	380.7	(D)	225.2	48.7	30.6	18.3	13.7	11.4	40.6	22.2	(D)	1.7	79.8	(D)	35.2	
Nondurable goods	170.0	(D)	81.9	13.2	13.8	6.5	4.3	5.0	18.3	19.6	(D)	.2	39.0	6.1	12.5	
Finance (except banking), insurance, and real estate	150.3	28.5	72.5	5.1	4.9	2.1	(D)	1.5	(D)	14.2	.9	.6	33.6	4.9	(D)	
Finance, except banking	51.0	7.7	27.5	2.1	3.2	.9	.8	1.2	16.1	(D)	(*)	(D)	11.8	3.0	5.5	
Insurance	94.0	18.2	43.4	2.8	1.4	.9	3.4	.2	(D)	(D)	(D)	.2	21.1	1.9	(D)	
Real estate	3.2	(D)	.6	.2	0	.1	(D)	0	(*)	(*)	(D)	.1	.4	0	(*)	
Holding companies	2.1	(D)	1.1	(*)	.3	.2	.1	.1	.3	.2	(*)	(D)	.4	0	0	
Services	569.1	69.9	336.4	83.9	36.1	9.4	21.3	(D)	135.8	67.9	7.5	18.4	69.0	27.3	17.6	
Hotels and other lodging places	54.0	4.0	16.7	2.0	5.1	.6	.5	.4	3.0	17.6	(D)	(D)	6.3	4.0	.1	
Business services	332.2	38.2	208.0	61.1	18.4	(D)	13.8	(D)	82.2	39.9	(D)	(D)	35.6	10.9	13.0	
Advertising	44.3	3.8	29.5	(D)	4.0	1.6	3.7	.5	5.9	2.6	.8	.4	7.2	(D)	1.0	
Equipment rental (ex. automotive and computers)	11.4	(D)	8.9	.2	(D)	0	.1	0	5.0	.7	(D)	.2	.1	0	.1	
Computer and data processing services	82.4	5.0	56.7	11.9	5.4	(D)	4.1	2.7	24.8	3.6	(*)	1.8	15.3	3.1	(D)	
Business services, nec	194.1	(D)	113.0	(D)	(D)	.7	5.9	(D)	46.6	32.9	.1	(D)	13.0	(D)	(D)	
Automotive rental and leasing	(D)	1.9	(D)	(D)	(D)	.4	.1	.3	(D)	.1	0	0	1.3	.8	0	
Motion pictures, including television tape and film	(D)	(D)	14.2	.4	.5	.3	(D)	(*)	10.8	.4	.1	(*)	.5	.1	.2	
Health services	17.1	1.7	5.6	0	0	0	0	.7	4.1	(D)	0	(*)	(D)	(D)	0	
Engineering, architectural, and surveying services	36.7	2.2	24.8	1.0	(D)	(D)	2.8	.1	(D)	(D)	(*)	2.9	(D)	1.1	.6	
Management and public relations services	18.9	1.4	13.1	.8	1.6	.6	.3	1.2	5.2	.8	(*)	(*)	3.6	.8	1.7	
Other	69.0	(D)	(D)	(D)	6.4	2.3	(D)	.8	7.3	5.2	(D)	(D)	9.2	(D)	2.0	
Other industries	1,220.8	268.4	331.9	23.3	64.2	22.4	(D)	(D)	(D)	244.2	27.7	3.1	329.9	(D)	(D)	15.5
Agriculture, forestry, and fishing	80.2	.2	(D)	1.0	.2	.3	.2	(*)	.7	55.2	(D)	0	11.7	(*)	.3	
Mining	91.6	10.4	.8	.3	0	0	(*)	0	0	44.9	15.9	(*)	19.5	11.7	(*)	
Metal mining	72.1	(D)	.3	0	0	0	0	0	0	33.6	(D)	(*)	18.5	10.8	0	
Nonmetallic minerals	19.6	(D)	.5	.3	0	0	(*)	0	0	11.3	(D)	0	.9	.9	(*)	
Construction	73.2	8.8	(D)	8.5	7.2	(D)	1.0	(*)	(D)	6.4	(D)	.8	11.8	7.9	.1	
Transportation	89.8	(D)	48.4	3.4	(D)	(D)	(D)	(D)	(D)	1.7	1.4	(D)	(D)	1.5	.9	15.5
Communication and public utilities	172.5	(D)	25.9	.3	(D)	(D)	4.6	0	(D)	(D)	0	.6	(D)	(D)	.3	
Retail trade	713.4	213.1	208.5	9.8	35.8	.4	1.4	1.7	152.0	(D)	0	(D)	260.7	(D)	(D)	

* Less than 50 employees.
D Suppressed to avoid disclosure of data of individual companies.
nec Not elsewhere classified.

A Guide to BEA Statistics on Foreign Direct Investment in the United States

By Alicia M. Quijano

EDITOR'S NOTE: This article appeared in 1990 and describes the data series as they existed at that time; since then, new data and new measures have become available. First, the establishment-level data on foreign direct investment in the United States have become available; these data are described in "Characteristics of Foreign-Owned U.S. Manufacturing Establishments." Second, BEA has introduced measures of the direct investment position valued at current-period prices, which are described in "Valuation of the U.S. International Investment Position," and a measure of direct investment income valued on a current-cost (replacement-cost) basis, which is described in "A Guide to BEA Statistics on U.S. Multinational Companies." (The current-cost income measure is defined in the same way for both U.S. direct investment abroad and foreign direct investment in the United States.)

Much of the material in this article was drawn from methodologies and technical notes by Betty L. Barker, R. David Belli, and Ned G. Howenstine, which appear in other sources. This article was first published in the February 1990 SURVEY OF CURRENT BUSINESS.

THE RECENT surge in foreign direct investment in the United States has caused a great deal of public debate on the magnitude and significance of such investment. Attention is focused on questions such as how much is invested, who is investing from abroad, what industries are most affected, what States receive the most investment, and how are these investments financed. This guide is designed to help those interested in foreign direct investment in the United States understand the data that are collected and published by the Bureau of Economic Analysis (BEA). Its purpose is to explain the types of information collected and clarify the differences in the data sets.

Direct investment implies that a person in one country has a lasting interest in and a degree of influence over the management of a business enterprise in another country. The criteria used to distinguish direct investment from other types of investment are rather arbitrary. In most countries, some percentage of ownership of a foreign company is used. The criterion used in the United States is set forth in the International Investment and Trade in Services Survey Act, which authorizes the collection of the direct investment data by BEA. Under the act, ownership or control of 10 percent or more of an enterprise's voting securities is considered evidence of a lasting interest in or a degree of influence over management sufficient to constitute direct investment. Thus, foreign direct investment in the United States is defined as the ownership or control, directly or indirectly, by one foreign person of 10 percent or more of the voting securities of an incorporated U.S. business enterprise or the equivalent interest in an unincorporated U.S. business enterprise. Any foreign investment that is not direct investment by this definition is considered portfolio investment. Data on portfolio investment are collected by the Treasury Department and are included, together with BEA's data on direct investment, in the U.S. international transactions accounts and in the U.S. international investment position of the United States, both of which appear in the SURVEY OF CURRENT BUSINESS.

BEA's data provide comprehensive and reliable information needed to monitor, assess the impact of, and guide U.S. policy on foreign direct investment in the United States. They give a detailed picture of the levels, growth, origin, and State and industrial distribution of foreign direct investment and of the financial and operating characteristics of the U.S. affiliates. The data are collected under the International Investment and Trade in Services Survey Act by means of mandatory surveys of the U.S. affiliates of foreign companies; they are published in regular articles in the SURVEY and in supplementary publications.[1]

Further Information About Direct Investment

A list of other articles, publications, and diskettes on direct investment is available from BEA. Requests should be sent to International Investment Division, Bureau of Economic Analysis, U.S. Department of Commerce, BE–50, Washington, DC 20230.

1. See table 5 on page 224. The data are also available on diskette or magnetic tape, and BEA can prepare additional tabulations at cost, within the limits of available resources.

General Description of Data

BEA collects three broad sets of data: (1) Balance of payments and the direct investment position data, (2) financial and operating data of U.S. affiliates, and (3) establishment and acquisition data. Each of these data sets focuses on a distinct aspect of foreign direct investment in the United States. The *balance of payments and direct investment position data* track the transactions and positions of both new and existing U.S. affiliates with their foreign parents; the *financial and operating data* provide a picture of the overall activities of the U.S. affiliates; and the *acquisition and establishment data* track new direct investments, regardless of whether the invested finds were raised here or abroad.

Balance of payments and direct investment position data

This set of data covers the U.S. affiliate's transactions and positions with its foreign parent or other members of its foreign parent group. (See the box below.) The major items included in the U.S. balance of payments are direct investment capital flows, direct investment income, royalties and license fees, and other services transactions with affiliated foreigners. The foreign direct investment position in the United States is a component of the U.S. international investment position. Balance of payments data are collected in two BEA quarterly surveys and are published in quarterly articles on U.S. international transactions in the March, June, September, and December issues of the SURVEY OF CURRENT

Relationships and Transactions of U.S. Affiliates with Their Foreign Parent Groups

In many cases, a U.S. affiliate is only one unit in a global network of corporate affiliations. Thus, a U.S. affiliate may have a foreign parent who, in turn, is owned by a direct investor of a third country or who has affiliates in other countries.

An affiliate's *foreign parent* is the first person outside the United States in the U.S. affiliate's ownership chain that has a direct investment interest in the affiliate. Its *ultimate beneficial owner* (UBO) is that person, proceeding up the U.S. affiliate's ownership chain beginning with and including the foreign parent, that is not owned more than 50 percent by another person.

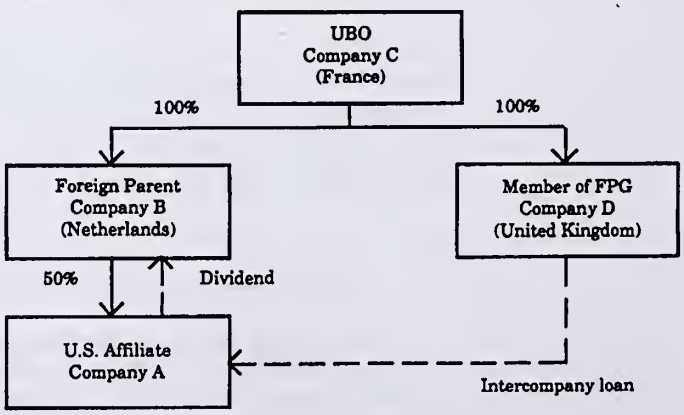
The *foreign parent group* (FPG) consists of (1) the foreign parent, (2) any foreign person, proceeding up the foreign parent's ownership chain, that owns more than 50 percent of the person below it, up to and including the UBO, and, (3) any foreign person, proceeding down the ownership chain(s) of each of these members, that is owned more than 50 percent by the person above it. In the U.S. balance of payments, transactions of U.S. affiliates with all members of the FPG, not only transactions with foreign parents, are shown as transactions with "affiliated" foreigners.

The diagram below illustrates relationships and transactions that could occur between a U.S. affiliate and members of the FPG. Company A is a U.S. chemical company owned 50 percent by Company B, a Netherlands finance affiliate, which is owned 100 percent by Company C, a French manufacturing company. No single investor has more than 50-percent ownership of Company C. Like Company B, Company D, a British company, is owned 100 percent by Company C. Therefore, Company A's foreign parent is Company B; Company A's UBO is Company C. Company A's FPG consists of Companies B, C, and D. Company D is in the FPG because, even though it does not have an ownership interest in the U.S. affiliate, it is owned more than 50 percent by Company C, the UBO.

If Company A receives a loan from Company D, the transaction would be treated as a direct investment transaction in the balance of payments accounts, because Company D is part of the FPG. The flow would be recorded as an intercompany debt inflow from the United Kingdom; repayments by the affiliate would be recorded as outflows to the United Kingdom.

If Company A pays dividends to Company B, the transaction would be recorded as a direct investment income payment between the United States and the Netherlands in the U.S. balance of payments because the dividends are paid directly to the foreign parent (not the UBO). If the Netherlands company (Company B) then passes on the dividend to the French UBO (Company C), this transaction would not be a U.S.-to-foreign transaction; it is a foreign-to-foreign transaction and as such is not recorded in the U.S. balance of payments. (It would, however, be recorded in the balance of payments accounts of France and the Netherlands.)

The direct investment positions of both Company B and Company D are equal to the book value of their cumulative debt or equity transactions with Company A over time and are calculated at yearend. For Company B, the position is equal to its equity (including reinvested earnings) in Company A plus any net outstanding loans by it to Company A. Company D has an investment position with Company A equal to the remaining balance of the loan. The position of Company C in Company A is zero because it has no direct equity interest in Company A and has made no loans to Company A.



BUSINESS. The position data are published in the U.S. international investment position article in the June SURVEY. More detailed tables on capital and income flows and on the position appear in the August SURVEY.

Direct investment capital flows consist of equity and intercompany debt flows between U.S. affiliates and their foreign parent groups and the foreign parents' share of the reinvested earnings of their U.S. affiliates. They represent the financing supplied to an affiliate by its foreign parent group. As discussed in the box, capital flows can take place between the U.S. affiliate and the foreign parent, the ultimate beneficial owner (UBO), or other members of the foreign parent group.

The *direct investment position* equals the yearend book value of the foreign parent groups' equity (including retained earnings) in, and net outstanding loans to, their U.S. affiliates. In other words, it is the *cumulative* value of net capital inflows from foreign direct investors. The position at the end of the current year is equal to the position at the end of the *previous* year plus net capital inflows and valuation adjustments in the current year.[2] For example, the foreign direct investment position in the United States was $271.8 billion at yearend 1987. In 1988, net capital inflows were $58.4 billion and net valuation adjustments were a negative $1.4 billion. Adding the latter two figures to the 1987 position gives the yearend 1988 position of $328.9 billion (table 1).

The direct investment position estimates are carried at book value and are not adjusted to current value. Thus, they largely reflect prices at the time of investment rather than prices of the current period. For a brief discussion of book value, see the section on characteristics of the data.

Direct investment income consists of (1) the foreign parents' shares of the U.S. affiliates' earnings (net of U.S. withholding taxes on distributed earnings) and (2) interest on intercompany debt of the U.S. affiliates with their foreign parent groups. Earnings is defined as the foreign parent's share in the net income of the U.S. affiliate, after provision for U.S. income taxes. Interest is defined as interest paid by the U.S. affiliate to the foreign parent group, net of interest received by the U.S. affiliate from the foreign parent group and net of U.S. and foreign withholding taxes.

Royalties and license fees are payments by U.S. affiliates to, less receipts by U.S. affiliates from, their foreign parents and other members of the foreign parent groups of fees for the use or purchase of intangible property or rights, such as patents, trademarks, copyrights, franchises, manufacturing rights, and other intangible assets or proprietary rights. Payments and receipts are net of U.S. and foreign withholding taxes.

Other services transactions consist of payments by U.S. affiliates to, less receipts by U.S. affiliates from, their foreign parents and other members of the foreign parent groups of service charges, charges for the use of tangible property, and film and television tape rentals. Service charges consist of fees for services—such as management, professional, or technical services—rendered between U.S. affiliates and their foreign parent groups.

Financial and operating data

The primary focus of the financial and operating data is on the overall operations of the U.S. affiliate, not just on the affiliate's transactions or positions with the foreign parent group. The data cover, among other things, U.S. affiliates' balance sheets and income statements, employment and employee compensation, merchandise trade, sources of external financing, and selected data by State (table 2). They cover only nonbank U.S. affiliates. (Selected data for bank affiliates are available from the Federal Reserve System.) The estimates are based on sample data from BEA's Annual Survey of Foreign Direct Investment in the United States or on universe data from BEA's Benchmark Survey of Foreign Direct Investment in the United States. (The benchmark survey, or census, is BEA's most comprehensive survey and is normally conducted every 5 years.) An annual article in the SURVEY OF CURRENT BUSINESS gives a brief description and analysis of the data.

2. Valuation adjustments primarily reflect differences between transaction values, which are used to record direct investment capital inflows, and book values on U.S. affiliates' books, which are used to record the position and hence changes in the position. For example, these adjustments include differences between the sales value and the book value of affiliates that are sold by foreign parents and differences between the purchase value and the book value of affiliates that are acquired by foreign parents.

Table 1.—Foreign Direct Investment in the United States: Position, Capital, Income, and Other Flows, 198788

[Millions of dollars]

	1987	1988
Position	271,788	328,850
Capital inflow (outflow)	46,894	58,435
Equity capital	30,621	40,362
Reinvested earnings	1,481	6,560
Intercompany debt	14,792	11,513
Valuation adjustments	4,480	–1,373
Income	9,500	16,748
Earnings	5,874	11,830
Interest	3,626	4,918
Royalties and license fees	843	968
Other service charges	–616	–694

Separate publications provide more detailed data. Data are available annually for 1977 forward.

The information collected on the overall operations of U.S. affiliates may be used to analyze the impact of foreign direct investment on the U.S. economy. For example, the information can answer questions such as: How many people do foreign-owned companies employ? How much do affiliates spend on plant expansions? What are their assets or sales? To answer these questions, data on the activity of the affiliate as a whole are needed, regardless of the foreign ownership share or the source of financing. Therefore, the data are not adjusted for percentage of foreign ownership. For example, if a French company has a 49-percent interest in a U.S. affiliate, all of the affiliate's employment is included in the data because all of the employees are affected by the foreign parent's influence or control over the management of the enterprise. (As discussed earlier, a 10-percent-or-more ownership interest is considered evidence that a foreign parent has sufficient influence or control over the management of the enterprise to constitute direct investment.)

In some cases, however, data users may want to focus their analysis on U.S. affiliates in which the foreign parent has a majority ownership share. In response to this need, BEA is developing separate estimates of financial and operating data for majority-owned U.S. affiliates—those owned more than 50 percent by foreigners. These estimates are expected to be available by mid–1990.

Table 2.—Selected Data of Nonbank U.S. Affiliates, 1986–87

	1986	1987	Change	
			Amount	Percent
	Thousands of employees			
Employment	2,937.9	3,159.7	221.8	8
	Millions of dollars			
Total assets	838,039	926,042	88,003	11
Gross property, plant, and equipment	320,215	346,212	25,997	8
Manufacturing [1]	n.a.	124,803	n.a.	n.a.
Commercial property [2]	n.a.	90,886	n.a.	n.a.
Other	n.a.	130,523	n.a.	n.a.
Sales	672,004	731,392	59,388	9
Goods	n.a.	621,848	n.a.	n.a.
Services	n.a.	90,764	n.a.	n.a.
Investment income	n.a.	18,780	n.a.	n.a.
Net income	2,458	9,859	7,401	301
U.S. merchandise exports shipped by affiliates	49,560	47,929	–1,631	–3
U.S. merchandise imports shipped to affiliates	125,732	140,617	14,885	12

n.a. Not available.
1. Consists of the gross book value of property, plant, and equipment used for manufacturing, including petroleum refining.
2. Consists of the gross book value of all commercial buildings and associated land owned by the affiliate that is used or operated by the affiliate or leased or rented to others. Commercial buildings include apartment buildings, office buildings, hotels, motels, and buildings used for wholesale, retail, and services trades (such as shopping centers, recreational facilities, department stores, bank buildings, restaurants, public garages, and automobile service stations).

Acquisition and establishment data

In the late 1970's, after an unprecedented surge in foreign direct investment, BEA developed and implemented a survey of new investments that requires a report from every U.S. business that is newly acquired or established by a foreign direct investor. Since 1979, this survey has provided BEA with the information on new investments needed to continually update its universe of foreign direct investment. The survey also provides users with more timely information on new investments than was available previously. The results of the survey are summarized in an annual SURVEY article, and supplementary tables containing additional detail are available from BEA.

The data from the survey cover (1) existing U.S. business enterprises in which foreign direct investors acquired, directly or through their U.S. affiliates, at least a 10-percent ownership interest and (2) new U.S. business enterprises established by foreign direct investors. The data do not cover the acquisition of additional equity in an existing U.S. affiliate by the foreign parent, the acquisition of an existing U.S. affiliate from a different foreign investor, or plant expansions by an existing U.S. affiliate. These transactions are not considered new investments because they do not result in U.S. affiliates being added to the direct investment universe; rather, they are considered either a transfer or an expansion of an ongoing investment by foreign direct investors.

The survey provides data on investment outlays, that is, on how much foreign direct investors spend in a given year to acquire or establish new U.S. affiliates. Outlays are the total dollar cost of the equity interests acquired or established. The survey also includes data on the number and type of investments and investors and on selected operating items—total assets, sales, net income, employment, and acres of U.S. land owned—for the new U.S. affiliate.

Outlays are presented by type of investor, that is, the foreign parent or an existing U.S. affiliate of the foreign parent (table 3). In the first case, the foreign parent acquires a direct ownership interest in the U.S. affiliate; in the second case, the foreign parent acquires an indirect ownership interest through its existing U.S. affiliate.

The Sets of Data Compared

Acquisition and establishment data compared with balance of payments data

The acquisition and establishment data and the balance of payments data provide different measures of the annual growth in foreign direct investment in the United States.

The acquisition and establishment data cover the actual outlays to establish or acquire new U.S. affiliates, regardless of how or by whom the investment was financed. Thus, the outlays may be made by either the foreign parent or an existing U.S. affiliate, and the source of financing may be other than the foreign parent group, such as local borrowing by existing U.S. affiliates. In contrast, the balance of payments data cover only transactions between foreign parent groups and U.S. affiliates. If, for example, a U.S. affiliate of a German chemical manufacturer acquired a U.S. chemical company by borrowing finds in the United States, the borrowed funds would be included in investment outlays but not in capital inflows in the balance of payments because the acquisition did not involve funds from the foreign parent.

Another difference is that direct investment capital flows finance any of the various operations of existing as well as new U.S. affiliates, whereas investment outlays finance only acquisitions and establishments of new U.S. affiliates. For example, if a German chemical manufacturer supplied its U.S. affiliate with funds to expand a plant, the funds would be included in the balance of payments data as a capital inflow, but would not be included in the acquisition and establishment data as an investment outlay because no new affiliate was created.

Direct investment capital flows related to acquisitions or establishments occur if the foreign parent purchases the equity directly or if the foreign parent or another member of the foreign parent group supplies finds to a U.S. affiliate in order to acquire or establish another U.S. business. Even in these cases, the capital flows may not equal total outlays, because the capital flows may have financed only a portion of the total. In any event, this type of inflow cannot be separated from other capital flows between the foreign parent group and its U.S. affiliates.

The acquisition and establishment data do not cover the acquisition of an existing affiliate by one foreign person from another because no new affiliate was created. For example, if a German chemical manufacturer acquired a U.S. chemical company that was already foreign owned, and thus already a U.S. affiliate, the purchase would

Table 3.—Investment Outlays by Country of Each Ultimate Beneficial Owner, 1987–88

[Millions of dollars]

	1987[r]					1988[p]				
	Total	By type of investment		By type of investor		Total	By type of investment		By type of investor	
		Acquisitions	Establishments	Foreign direct investors	U.S. affiliates		Acquisitions	Establishments	Foreign direct investors	U.S. affiliates
All countries	**40,310**	**33,933**	**6,377**	**11,773**	**28,536**	**65,019**	**60,003**	**5,016**	**16,400**	**48,619**
Canada	**1,276**	**1,169**	**107**	**409**	**867**	**10,405**	**10,291**	**114**	**752**	**9,653**
Europe	**25,517**	**24,003**	**1,514**	**6,634**	**18,884**	**34,157**	**32,641**	**1,516**	**6,958**	**27,199**
Of which:										
France	2,044	1,949	96	946	1,098	3,753	3,276	477	201	3,553
Germany, Federal Republic of	4,664	4,318	347	319	4,345	1,375	1,242	133	430	944
Netherlands	391	204	188	122	269	1,937	1,837	100	218	1,719
Switzerland	2,085	1,926	160	1,302	784	2,017	1,593	424	530	1,487
United Kingdom	15,142	14,648	494	3,300	11,842	21,520	21,371	149	4,779	16,741
Latin America and Other Western Hemisphere	**1,483**	**1,030**	**454**	**526**	**957**	**106**	**83**	**23**	**86**	**20**
Africa	(D)	(D)	(D)	(D)	(D)	**28**	**23**	**5**	**6**	**22**
Middle East	**925**	**465**	**460**	**527**	**398**	**1,004**	**933**	**71**	**112**	**892**
Asia and Pacific	**10,928**	**7,112**	**3,816**	**3,522**	**7,406**	**19,278**	**16,004**	**3,274**	**8,467**	**10,811**
Of which:										
Australia	2,691	2,609	82	663	2,028	4,211	4,014	197	255	3,956
Japan	7,006	3,340	3,666	2,103	4,903	14,166	11,524	2,642	7,599	6,567
United States	(D)	(D)	(D)	(D)	(D)	**41**	**29**	**12**	**19**	**22**
Addenda:										
European Communities (12)	22,895	21,631	1,264	5,112	17,783	31,175	30,157	1,018	6,274	24,901
OPEC	1,077	592	485	554	523	1,322	1,250	72	433	889

[r] Revised.
[p] Preliminary.
(D) Suppressed to avoid disclosure of data of individual companies.

not be covered in the acquisition and establishment data. This transaction would be included in the balance of payments data only if the new foreign parent group provided funds to another U.S. affiliate to finance the acquisition indirectly.[3]

Finally, the two sets of data are presented differently. The balance of payments data are presented by country of foreign parent and by industry of affiliate. The acquisition and establishment data are presented by country of UBO and by industry of the U.S. business enterprise acquired or established. (See subsections on country and industry classification on pages 224–225.)

Financial and operating data compared with balance of payments data

These two sets of data provide different measures of the size of foreign direct investment in the United States. The measures differ mainly because the financial and operating data cover the overall activities of the U.S. affiliate and are not adjusted for percentage of foreign ownership. In contrast, the balance of payments data focus exclusively on the foreign parent group's investment in the affiliate.

The balance of payments data and the financial and operating data are closely related, but the terminology used for certain items in the two sets of data can be a source of misunderstanding to users. For example, data users often confuse the direct investment position—a balance-of-payments-related item—with the total assets of the affiliate—a financial and operating item. Total assets of the affiliate cover all assets of the affiliate carried in its balance sheet, regardless of how the assets are financed. The position is the portion of the affiliate's assets that is financed by the foreign parent or other members of the foreign parent group in the form of debt or equity.

One way to see the relationship between the direct investment position and total assets of the U.S. affiliate is by examining the composition of external financing of affiliates. Table 4 presents information on the external sources of finds, including finds from the foreign parent group, used by affiliates to finance assets in 1987. Affiliate liabilities and owners' equity are broken down by transactor—that is, by the foreign parent group, unaffiliated foreign persons, or U.S. persons. The values for liabilities and owners' equity of the foreign parent group are roughly equal to the direct investment position.[4]

Two important observations can be made from this table. First, although financing from foreign parent groups is an important source of finds, financing from U.S. sources is even more important. Second, foreign parents account for more than 80 percent of all owners' equity in nonbank U.S. affiliates. Thus, although only a 10-percent ownership interest in an affiliate qualifies as direct investment, most foreign parents wholly own, or have a majority interest in, their U.S. affiliates.

Another financial and operating data item that is sometimes confused with the position is the gross book value of property, plant, and equipment of affiliates. This item is taken from affiliates' balance sheets and is a measure of their total fixed assets, regardless of how these assets are financed. The direct investment position, as stated earlier, is the cumulative value of financing provided by the foreign parent group, regardless of how the funds are used. Thus, the position reflects sources of funds, whereas the gross book

3. This transaction would not be included in the balance of payments data if the foreign parent purchased capital stock in the U.S. affiliate from another foreign person, because that would be a foreign-to-foreign transaction. However, if the foreigners are in different countries, offsetting valuation adjustments would be made by BEA to the direct investment position to reduce the position of the seller's country and to increase the position of the purchaser's country.

4. The figure for equity and debt investment by the foreign parent group ($234.7 billion) in table 4 does not match the position figure ($271.8 billion), primarily because the former, unlike the latter, does not cover bank affiliates and, for nonbank affiliates, does not include retained earnings or affiliates' receivables due from the foreign parent group. Also, the external financing data are on a fiscal year basis, whereas the position data are on a calendar year basis.

Table 4.—External Financial Position of Nonbank U.S. Affiliates, Transactor by Account, 1987

[Millions of Dollars]

	External sources of funds					Receivables and financial investments		
	Total	Current liabilities and long-term debt			Owners' equity excluding retained earnings	Total	Current and noncurrent receivables	Noncurrent financial investments
		Total	To banks	To nonbanks				
All transactors	783,759	608,830	130,085	478,745	174,929	272,717	226,663	46,054
Foreign parent group	234,689	92,520	3,204	89,315	142,169	24,604	22,997	1,607
Other foreign persons	25,569	24,573	14,155	10,418	996	8,325	5,825	2,500
U.S. persons	523,501	491,737	112,725	379,012	31,764	239,788	197,840	41,948

value of property, plant, and equipment reflects uses of funds. BEA data on the gross book value of property, plant, and equipment are collected by State. Thus, they provide a measure of the extent of the operations of affiliates in a given State. However, information on the amount of foreign parent financing of affiliate operations in a State, or on how much foreign direct investors spend on property, plant, and equipment in the State, is not collected by BEA.

The financial and operating data are generally presented by country of UBO and the balance of payments data are, as noted earlier, presented by country of foreign parent. The country of foreign parent is often the same as the country of UBO. Exceptions arise when, for certain foreign tax, regulatory, or other purposes, foreign direct investors find it advantageous to hold or finance their direct investments in the United States through third countries. For example, many Canadian UBO's hold their U.S. affiliates through affiliates in the Netherlands for tax reasons. In addition, a significant portion of U.S. affiliate financing, including equity capital, comes from affiliates in Caribbean offshore financial centers.

Characteristics of the Data

Data collection

All foreign direct investments in U.S. business enterprises, including all ownership of real estate other than for personal use, are subject to mandatory reporting to BEA under the International Investment and Trade in Services Survey Act (P.L. 94–472, 90 Stat. 2059, 22 U.S.C. 3101–3108, as amended). The data are collected by means of a series of surveys. Table 5 describes the types of information, the data collection procedures, and the publications where the results can be found.

Confidentiality

Information collected by BEA is protected against unauthorized public disclosure by the International Investment and Trade in Services Survey Act. The act states that the information collected cannot be published or released in such a manner that the person or company that furnished the information can be specifically identified. The act further specifies that the information collected must be used only for statistical and analytical purposes. Use of an individual company's data for tax, investigative, or regulatory purposes is prohibited.

Confidentiality is crucial for maintaining the integrity of the direct investment data collection system. Confidentiality assures companies that their competitors will not gain an unfair advantage by having access to their data and that the data are gathered for statistical, not regulatory, purposes. If confidentiality were not guaranteed, companies would be less willing to provide accurate information, and the quality of the resulting statistics would suffer.

To ensure confidentiality, data are tested before publication to determine if they should be suppressed (that is, not shown). To avoid disclosing the data of an individual company, a "(D)" is placed in the data cell. The suppression of data in a cell limits analysis by users. However, BEA can do analyses based on individual company data, and it can use individual company data to do special analyses for outside researchers at cost, as long as the results do not disclose proprietary information. The act also permits other Federal agencies to have access to the individual company data if they are designated to perform analytical or statistical functions under the act.

Valuation of the direct investment position

As noted previously, the direct investment position estimates are carried at book value. Thus, they largely reflect prices at the time of investment rather than prices of the current period. As a result, the foreign direct investment position may be understated in relation to current value.

Book value is used mainly because historical cost is the accepted basis for company accounting records both in the United States and many other countries. Thus, with few exceptions, book values are the only ones readily available to companies required to report in BEA surveys. For those companies that do have current value estimates, the estimates differ from company to company. For example, estimates may represent an "exit" or sale value, which can be based on an independent appraisal of an affiliate or on offers by potential buyers; or an appraisal oriented towards tax or regulatory reporting; or some measure of specific interest to the company itself or to its shareholders. BEA is investigating the feasibility of using indirect methods to estimate the current value of the foreign direct investment position.

Country classification

The foreign parent and UBO of a U.S. affiliate are each classified by country. For affiliates

with more than one foreign parent or UBO, each foreign parent and UBO is classified separately.

The financial and operating data and the acquisition and establishment data are published primarily by country of UBO because the country of the person that ultimately controls, and that therefore derives the benefits from owning or controlling, the U.S. affiliate is considered the most important in analyzing these data sets. When a given affiliate has two or more UBO's, the data are shown in the country of the UBO having the largest percentage of ownership in the U.S. affiliate.

The direct investment position and balance of payments data are classified by country of foreign parent rather than by country of UBO. Any transactions with other members of the foreign parent group are assigned to the countries of the other members. This classification is consistent with the U.S. balance of payments methodology, which requires that each transaction be assigned to the foreign country with which it occurred.

Industry classification

Data can be classified by industry in three ways: Industry of U.S. affiliate, industry of sales, and industry of UBO. The most widely used classification is by industry of U.S. affiliate.

When data are classified by industry of U.S. affiliate, BEA assigns each affiliate the code of the industry that accounts for the largest percentage of the affiliate's sales. The procedure is as follows:

(1) A U.S. affiliate is first classified in the major industry that accounted for the largest percentage of its sales. Major industry groups are (a)

Table 5.—BEA's Foreign Direct Investment Surveys

Survey title and number	Types of information	Data collection procedures	SURVEY OF CURRENT BUSINESS article and related publications
Initial Report on a Foreign Person's Direct or Indirect Acquisition, Establishment, or Purchase of the Operating Assets of a U.S. Business Enterprise, Including Real Estate (BE-13) and Report by a U.S. Person Who Assists or Intervenes in the Acquisition of a U.S. Business Enterprise by, or Who enters into a Joint Venture with, a Foreign Person (BE-14).	Investment outlays by foreign direct investors for the direct or indirect acquisition or establishment of a new U.S. affiliate, and selected operating data of the new U.S. affiliate (total assets, sales, acres of land, net income, and employment).	Mandatory report required when a foreign person or an existing U.S. affiliate establishes or acquires a 10-percent or more voting interest in a U.S. business enterprise and when real estate is purchased other than for personal use. An exemption form is required if the newly acquired or established U.S. affiliate costs less than $1 million and does not own more than 200 acres of land.	"U.S. Business Enterprises Acquired or Established by Foreign Direct Investors" in the May SURVEY OF CURRENT BUSINESS. Supplementary tables available from BEA for 1980 forward.
Transactions of U.S. Affiliate, Except an Unincorporated Bank, with Foreign Parent (BE-605) and Transactions of Banking Branch or Agency with Foreign Parent (BE-606B).	Changes in foreign parents' equity in their U.S. affiliates; intercompany debt transactions between U.S. affiliates and foreign parent groups; foreign parents' share of affiliate net income, distributed earnings, capital gains and losses, reinvested earnings, and interest; royalties and license fees; and other services transactions between U.S. affiliates and their foreign parent groups.	Mandatory quarterly survey of U.S. affiliates, when an affiliate's assets, annual sales, or annual net income exceeds $20 million.	Quarterly data on capital, income, and other flows appear in the March, June, September and December SURVEY articles on U.S. international transactions. Direct investment position data appear in the June SURVEY article on the U.S. international investment position. Detailed tables on the position and related capital, income, and other flows between parents and affiliates appear in the August SURVEY.
Annual Survey of Foreign Direct Investment in the United States (BE-15).	U.S. affiliates' balance sheets and income statements; external financial position; property, plant, and equipment; employment and employee compensation; U.S. merchandise trade; and research and development expenditures, including selected data items by State.	Mandatory annual survey of U.S. affiliates, when an affiliate's assets, sales, or net income exceeds $10 million. Beginning in 1988, a long form must be filed by affiliates with assets, sales, or net income over $20 million, and a short form must be filed by affiliates with assets, sales, or net income are between $10 million and $20 million.	"Operations of U.S. Affiliates of Foreign Companies," usually in the May SURVEY. (In 1989, this article was replaced by an article on the 1987 benchmark survey in the July SURVEY (see below); the article will also appear in the July SURVEY in 1990.) More detailed data for 1977-85 appear in separate publications available from BEA by the same title. Revised 1986 data are available from GPO.
Benchmark Survey of Foreign Direct Investment in the United States (BE-12).	Complete financial and operating data for each U.S. affiliate of foreign direct investors, including selected items by State, and data on the investment position and transactions between U.S. affiliates and their foreign parent groups.	Mandatory benchmark survey, or census, taken every 5 years of each U.S. affiliate, when the U.S. affiliate's assets, sales, or net income exceeds $1 million or when the affiliate owns 200 or more acres of U.S. land. Affiliates below the exemption level must file an exemption claim on which they report the value of their assets, sales, and net income. Affiliates with assets, sales, or net income greater than $20 million file a long form; those with assets, sales, or net income exceeds $1 million, but for which no one item exceeds $20 million, file a short form.	Preliminary data appeared in "U.S. Affiliates of Foreign Companies: 1987 Benchmark Survey Results" in the July 1989 SURVEY. More detailed data appear in a separate publication available from GPO entitled *Foreign Direct Investment in the United States: 1987 Benchmark Survey, Preliminary Results.* Final results will be available this summer.

agriculture, forestry, and fishing, (b) mining, (c) petroleum, (d) construction, (e) manufacturing, (f) transportation, communication, and public utilities, (g) wholesale trade, (h) retail trade, (i) finance, insurance, and real estate, and (j) services.

(2) Within the major industry group, the U.S. affiliate is classified in the two-digit subindustry in which its sales were largest.

(3) Within this two-digit industry, the U.S. affiliate is classified in the three-digit subindustry in which its sales were largest.

This procedure ensures that the U.S. affiliate is not assigned to a three-digit subindustry that is outside its major industry even if its sales in that subindustry exceed its sales in the largest three-digit subindustry within its major industry.

When classified by industry of affiliate, all data for an affiliate are shown in a single industry, even if the affiliate has activities in several industries. Thus, the distribution of data by industry of affiliate may differ from the distribution that would result if each of the activities of an affiliate were separately classified by industry. For example, U.S. affiliates of many foreign automobile manufacturers are classified in wholesale trade, not in transportation equipment manufacturing, because most of their sales result from the wholesale distribution of imported cars rather than from sales of cars they manufacture in the United States.

When classified by industry of sales, data in secondary industries are shown in those industries rather than all data being shown in the affiliate's primary industry. The items that are available by industry of sales are employment and sales. Prior to 1987, these data were only available in benchmark years, but are now available annually.

Classification by industry of UBO is much less detailed than classification by industry of affiliate. Each UBO is assigned to 1 of 17 broad industry categories that is specified by the affiliate.

Comparisons of Foreign Direct Investment Data With All-U.S.-Business Data

This section provides examples of affiliate data and all-U.S.-business data that are reasonably comparable and that provide an indication of the foreign investment share of the U.S. economy. Table 6 shows selected U.S. affiliate and all-U.S.-business data for all industries combined, and table 7 compares total assets and sales of U.S. affiliates and all U.S. businesses in manufacturing. Table 8 lists the sources of the all-U.S.-business data. The data in tables 6 and 7 are included here only to illustrate some of the comparisons that can be made. Additional comparisons may also be possible.

As tables 6 and 7 indicate, the U.S. affiliate share of the total U.S. economy varies according to the measure used. Analyses of several measures and the variations among them can be found in other BEA publications.[5]

It should be noted that, in cases where reasonably comparable U.S. affiliate and all-U.S. data are available, not all measures are available for every industry. For example, for some items, such as assets and sales, comparable U.S. affiliate and all-U.S.-business data are available only for man-

5. For the most recent analysis, see "U.S. Affiliates of Foreign Companies: 1987 Benchmark Survey Results" in the May 1989 SURVEY OF CURRENT BUSINESS.

Table 6.—Selected Comparisons of Nonbank U.S. Affiliates and All Nonbank U.S. Businesses, 1986–87

	1986		1987		U.S. affiliates as a percentage of all U.S. businesses	
	U.S. affiliates	All U.S. businesses	U.S. affiliates	All U.S. businesses	1986	1987
	Thousands of employees					
Employment	2,938	84,055	3,160	86,584	3.5	3.6
	Billions of dollars					
U.S. merchandise trade:						
U.S. merchandise exports	49.6	226.5	47.9	253.9	21.9	18.5
U.S. merchandise imports	125.7	365.7	140.6	406.3	34.4	34.6
Research and development expenditures	5.8	61.7	6.2	64.9	9.4	9.6
Expenditures for new plant and equipment	28.5	379.5	31.6	389.7	7.5	8.1
Gross product	148.3	3,626.0	151.9	3,875.9	4.1	3.9
	Millions of acres					
Acres of land owned	14	2,265.2	14	2,265.2	.6	.6

ufacturing. For other items, such as employment, strictly comparable data are available only at the all-industries level.[6]

For a few items, such as the foreign direct investment position, no readily available U.S. counterpart exists. Because the position is the most commonly used measure of direct investment, many users would like to relate it to a comparable figure for all U.S. businesses. However, the position, as explained earlier, is the cumulation of capital flows between U.S. affiliates and members of the foreign parent group, and it is a concept relevant only in a balance of payments context.

Regardless of the measure used, comparisons of the U.S. affiliate and all-U.S.-business data should be made with caution because of definitional and conceptual differences in the data series, such as differences in valuation, industry classification, and coverage.

6. However, reasonable comparisons below that level can be made using all-U.S. employment data disaggregate by industry of establishment and affiliate data disaggregated by industry of sales. See the subsection on industry classification below and the article cited in footnote 5 for further explanation.

Valuation.—Comparisons of U.S. affiliate assets and all-U.S.-business data on assets may be affected by the use of book rather than current value. When a company is acquired, whether by foreign or U.S. buyers, its assets are often revalued to reflect the new, generally higher value implicit in the acquisition price. Because much of the growth in foreign direct investment in recent years has involved acquisitions, the share of affiliates' assets that has been revalued is probably much higher than that for all U.S. businesses. Thus, affiliates' assets may tend to be overstated relative to assets of all U.S. businesses.

Industry classification.—Comparisons of U.S. affiliate and all-U.S.-business data at detailed industry levels are not appropriate when the affiliate data are classified by industry at the enterprise (company) level and the all-U.S.-business data are classified by industry at the establishment level. For example, when affiliate employment is classified by industry of enterprise but all-U.S.-business employment is classified by industry

Table 7.—Total Assets and Sales of U.S. Affiliates and All U.S. Businesses in Manufacturing, 1986–87

	Millions of dollars				U.S. affiliates as a percentage of all U.S. businesses	
	U.S. affiliates		All U.S. businesses			
	1986	1987	1986	1987	1986	1987
	Total assets					
Manufacturing	**243,429**	**276,764**	**1,994,119**	**2,135,266**	**12.2**	**13.0**
Stone, clay, and glass products	11,610	15,016	46,784	48,057	24.8	31.2
Chemicals and allied products	70,709	75,552	217,166	244,446	32.6	30.9
Primary metal industries	15,231	14,975	73,942	78,678	20.6	19.0
Petroleum and coal products	51,003	58,352	334,952	338,384	15.2	17.2
Rubber and plastics products	2,406	5,875	41,329	43,956	5.8	13.4
Food and kindred products [1]	21,029	27,689	219,791	235,690	9.6	11.7
Electric and electronic equipment	20,156	20,121	173,262	190,363	11.6	10.6
Printing and publishing	11,124	10,521	94,154	99,617	11.8	10.6
Instruments and related products	4,419	7,652	62,943	78,988	7.0	9.7
Fabricated metal products	7,199	7,820	84,491	86,746	8.5	9.0
Paper and allied products	5,264	6,027	69,082	85,279	7.6	7.1
Machinery, except electrical	10,433	12,171	211,901	213,658	4.9	5.7
Textile products	1,188	1,417	26,729	30,817	4.4	4.6
Transportation equipment	6,897	7,412	251,406	276,740	2.7	2.7
Other	4,761	6,164	86,187	83,847	5.5	7.4
	Sales					
Manufacturing	**222,025**	**262,343**	**2,220,931**	**2,378,212**	**10.0**	**11.0**
Stone, clay, and glass products	11,602	12,075	52,901	54,338	21.9	22.2
Chemicals and allied products	60,120	70,238	205,778	225,200	29.2	31.2
Primary metal industries	16,283	18,259	85,523	93,627	19.0	19.5
Petroleum and coal products	31,408	41,641	226,519	248,324	13.9	16.8
Rubber and plastics products	2,885	6,546	60,596	63,293	4.8	10.3
Food and kindred products [1]	21,676	27,751	317,523	340,135	6.8	8.2
Electric and electronic equipment	23,579	25,704	193,892	210,870	12.2	12.2
Printing and publishing	8,627	9,049	107,552	116,587	8.0	7.8
Instruments and related products	4,493	6,802	63,152	74,171	7.1	9.2
Fabricated metal products	8,819	8,879	115,694	123,994	7.6	7.2
Paper and allied products	5,170	6,350	74,844	95,576	6.9	6.6
Machinery, except electrical	10,857	13,087	201,284	206,438	5.4	6.3
Textile products	1,588	1,840	46,226	48,284	3.4	3.8
Transportation equipment	10,034	8,253	322,438	324,117	3.1	2.5
Other	4,884	5,869	147,009	153,258	3.3	3.8

NOTE.—In this table, unlike most other tables on direct investment published here and elsewhere, petroleum and coal products is included in manufacturing in order to be consistent with the industry classification of the all-U.S.-business data.

1. Includes tobacco manufacturing.

of establishment, comparisons of the affiliate share of U.S. employment can only be made for broad industry groups, such as petroleum, manufacturing, or wholesale trade.

In benchmark years and in future annual publications, comparisons of employment can be made using data classified by industry of sales. Affiliate employment classified by industry of sales should approximate that classified by industry of establishment (plant) because an affiliate that has an establishment in an industry usually also has sales in the industry. Another difference in industry classification between affiliate data and all-U.S.-business data is the treatment of the petroleum and coal products industry. In the affiliate data, companies in this industry are classified in petroleum, whereas in the all-U.S.-business data, they are classified in manufacturing. However, in this instance, the affiliate data can be easily reclassified to be comparable to the all-U.S.-business data.

Coverage.—The data for U.S. affiliates can be compared with data for all U.S. businesses at fairly detailed industry levels by using all-U.S.-business data classified at the enterprise level. However, differences in coverage between the two data sets may preclude comparisons for some industries. The Census Bureau's *Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations* (QFR) contains data on total assets and sales by U.S. manufacturing subindustry. The comparisons made with these all-U.S.-business data are limited to manufacturing because the QFR data for mining and trade cover only corporations with assets over $25 million, whereas the universe estimates for U.S. affiliates cover U.S. business enterprises with assets, sales, or net income over $1 million. Also, the exclusion of unincorporated businesses from the QFR mining and trade data means that a significant portion of the all-U.S.-business activity in these industries is missing.

Table 8.—All-U.S.-Business Data Sources Comparable to Foreign Direct Investment in the United States Data

Item	All-U.S.-business data source	Comments
Employment	Table 6.6B, "National Income and Product Accounts Tables," July SURVEY OF CURRENT BUSINESS.	Employment of government and government enterprises, banks, and private households must be subtracted from all-U.S. data. FDIUS data are classified by industry of enterprise; all-U.S. data are classified by industry of establishment. Thus, comparisons can only be made for major industries.
Employment by industry of sales	Same as above	FDIUS data available for 1980 and 1987 and will be available annually for 1988 forward.
Manufacturing employment by State.	*Employment and Earnings*, May 1988, Bureau of Labor Statistics, U.S. Department of Labor.	
Total assets	*Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations*, Census Bureau, U.S. Department of Commerce.	Comparison is limited to manufacturing because of differences in coverage.
Sales	Same as for total assets	Same as for total assets.
Expenditures for new plant and equipment.	"Plant and Equipment Expenditures, Third Quarter 1989," Commerce News Release (CB-89-199), December 1989, Census Bureau, U.S. Department of Commerce.	These data have been collected and published by the Census Bureau since August 1988. Data for years prior to 1987 are available in the June issues of the SURVEY OF CURRENT BUSINESS.
Gross product	Table 6.1, "National Income and Product Accounts Tables," July SURVEY OF CURRENT BUSINESS.	All-U.S. data are classified by industry of establishment. Government, banking, and private household figures should be subtracted from all-U.S. data for a closer comparison. FDIUS tables are available from BEA.
Merchandise trade	*Highlights of U.S. Export and Import Trade* (publication FT990), Census Bureau, U.S. Department of Commerce.	
Research and development expenditures.	*Research and Development in Industry*, National Science Foundation	Although the totals in the two data sets are comparable, industry comparisons are limited because of differences in industry classification. For a given industry, all-U.S. data include R&D performed by companies in that industry and exclude R&D performed for companies in that industry by others; FDIUS data include R&D performed for the companies in that industry by others and exclude R&D performed by the companies in that industry for others.
Acres of land owned	Geography Division, Census Bureau, U.S. Department of Commerce	

FDIUS Foreign direct investment in the United States.

Methodologies

Methodology for U.S. Direct Investment Abroad

This methodology was first published in 1998 in *U.S. Direct Investment Abroad: 1994 Benchmark Survey, Final Results.*

THE 1994 BENCHMARK Survey of U.S. Direct Investment Abroad was conducted by the Bureau of Economic Analysis (BEA) to obtain complete and accurate data on U.S. direct investment abroad in 1994. Reporting in the survey was mandatory under the International Investment and Trade in Services Survey Act.[1]

The publication presents 243 tables that contain nearly all of the data collected in the benchmark survey. Three related types of data are presented: (1) Foreign-affiliate financial and operating data, (2) U.S.-parent financial and operating data, and (3) direct investment position and balance of payments data. The financial and operating data cover balance sheets and income statements; property, plant, and equipment; employment and compensation of employees; U.S. trade in goods; sales of goods and services; gross product; technology; taxes; and external financial position.

The direct investment position and balance of payments data cover positions and transactions between foreign affiliates and their U.S. parents. These data are the source of the official estimates of direct investment that enter the U.S. national income and product accounts (NIPA's) and the U.S. international investment position and balance of payments (or "international transactions") accounts. Balance of payments data include data on capital flows between U.S. parents and their foreign affiliates, receipts of income by U.S. parents from their foreign affiliates, and U.S. parents' receipts and payments of royalties and license fees and charges for other services from and to their foreign affiliates.[2] The direct investment income and position data collected in the benchmark survey and shown in this publication are on a historical-cost basis; prior to their inclusion in the international accounts and the NIPA's they are adjusted to reflect current-period prices.

The amount and type of data collected in the survey differed, depending on whether the U.S. parents or foreign affiliates were banks or nonbanks and, for nonbank affiliates, depending on whether they were majority or minority owned.[3] In this publication, data for foreign affiliates and for their U.S. parents are presented separately for five affiliate groups: (1) All affiliates of all U.S. parents, (2) nonbank affiliates of nonbank U.S. parents, (3) majority-owned nonbank affiliates of nonbank U.S. parents, (4) nonbank affiliates of U.S. parents in banking, and (5) bank affiliates of all U.S. parents.

A variety of table formats are used: Some tables present data for several related items disaggregated by country or by industry; others present data for a single item disaggregated by country (or industry) and cross-classified by industry (or country).

The data in this publication supersede the preliminary estimates that appeared in *U.S. Direct Investment Abroad: 1994 Benchmark Survey, Preliminary Results* and that were summarized in "Operations of U.S. Multinational Companies: Preliminary Results from the 1994 Benchmark Survey" in the December 1996 issue of the SURVEY OF CURRENT BUSINESS.

The financial and operating data in this publication are part of an annual time series that covers 1982–95. Benchmark surveys were conducted for 3 years in the series—1982, 1989, and 1994—and they will continue to be conducted every 5 years. In nonbenchmark survey years, a sample survey is conducted to derive universe estimates that are comparable with the benchmark survey data.[4] The estimates for all years are available in publications, and the estimates for 1983–95 are also available on diskettes. Ordering information for the publications and diskettes is at the back of this publication. Some data items presented here—service charges by type and selected asset and liability positions of U.S. parents—were collected for the first time in the 1994 benchmark survey. Other data items—such as employment of U.S. parents by industry of sales, U.S. trade

1. Public Law 472, 94th Cong., 90 Stat. 2059, 22 U.S.C. 3101–3108, as amended.

2. Benchmark survey data on U.S. trade in goods of parents and affiliates are grouped under financial and operating data rather than balance of payments data, because they are not the source of the official trade in goods statistics in the U.S. balance of payments accounts.

3. In this publication, the term "bank" is used to describe parents and affiliates that are classified as "depository institutions," which includes savings institutions and credit unions, as well as commercial banks.

4. The sample of affiliates for nonbenchmark surveys is determined by size. The sample for the nonbenchmark survey covering 1995, for example, consisted of affiliates that had total assets, sales, or net income (or loss) greater than $20 million.

Table 1.—Comparison of Tables in This Publication With Those in the Publications for 1990–93 and the Publications for 1995–98

Table in this publication	Comparable table in publications for 1990–93	Comparable table in publications for 1995–98
Nonbank Foreign Affiliates of Nonbank U.S. Parents		
Group A. Selected Data		
II.A1	II.A 1	II.A 1
II.A 2	II.A 2	II.A 2
Group B. Balance Sheet		
II.B 1–II.B 4.		
II.B 5	II.B 5	II.B 5
II.B 6	II.B 6	II.B 6
II.B 7–II.B 12.		
II.B 13	II.B 15	II.B 13
Group D. Property, Plant, and Equipment		
II.D 6–II.D 7.		
Group E. Income Statement		
II.E 1–II.E 2.		
II.E 3	II.E 3	II.E 3
II.E 4	II.E 4	II.E 4
II.E 5.		
II.E 6	II.E 6	II.E 6
II.E 7	II.E 7	II.E 7
II.E 8.		
II.E 9	II.E 9	II.E 9
II.E 10–II.E 11.		
Group F. Sales		
II.F 24.		
Group H. Employment and Compensation of Employees		
II.H 3	II.G 3	II.H 3
II.H 4	II.G 4	II.H 4
II.H 6	II.G 6	II.H 6
II.H 7	II.G 7	II.H 7
II.H 11	II.G 11	I.H 11
II.H 12.		
Group I. U.S. Trade in Goods		
II.I 1–II.I 2.		
II.I 5	II.H 5	II.I 5
II.I 6	II.H 6	II.I 6
II.I 9.		
II.I 19	II.H 22	II.I 19
II.I 20	II.H 23	II.I 20
II.I 23.		
Nonbank U.S. Parents		
Group L. Selected Data		
II.L 1	II.K 1	II.L 1
Group M. Balance Sheet		
II.M 1–II.M 2.		
Group N. Asset and Liability Positions		
II.N 1.		
Group O. Property, Plant, and Equipment		
II.O 1–II.O 2.		
Group P. Income Statement		
II.P 1.		
Group Q. Sales		
II.Q 1	II.O 1	II.Q 1
II.Q 2	II.O 2	II.Q 2
Group R. Gross Product		
II.R.1		II.R 1
Group S. Employment and Compensation of Employees		
II.S 1–II.S 2.		
Group T. U.S. Trade In Goods		
II.T 1	II.Q 1	II.T 1
II.T 2–II.T 3.		
II.T 4	II.Q 4	II.T 4
II.T 5–II.T 6.		
Group U. Technology		
II.U 1–II.U 2.		
Group V. Other Financial and Operating Data		
II.V 1.		
Majority-Owned Nonbank Affiliates of Nonbank U.S. Parents		
Group A. Selected Data		
III.A 1	III.A 1	III.A 1
III.A 2	III.A 2	III.A 2
Group B. Balance Sheet		
III.B 1–III.B 2	III.B 1–2	III.B 1–2
III.B 3–III.B 4	III.B 3–4	III.B 3–4
III.B 5	III.B 5	III.B 5
III.B 6	III.B 6	III.B 6
III.B 7	III.B 7	III.B 7
III.B 8–III.B 10.		
III.B 11–III.B 12	III.B 13–14	III.B 11–12
III.B 13	III.B 15	III.B 13
Group C. External Financial Position		
III.C 1	III.C 1	III.C 1
III.C 2–III.C 10.		
Group D. Property, Plant, and Equipment		
III.D 6–III.D 8		III.D 6–III.D 8
Group E. Income Statement		
III.E 1	III.E 1	III.E 1
III.E 2	III.E 2	III.E 2
III.E 3	III.E 3	III.E 3
III.E 4	III.E 4	III.E 4
III.E 5	III.E 5	III.E 5
III.E 6	III.E 6	III.E 6
III.E 7	III.E 7	III.E 7
III.E 8	III.E 8	III.E 8
III.E 9	III.E 9	III.E 9
III.E 10–III.E 11.		
Group F. Sales		
III.F 1	III.F 1	III.F 1
III.F 2	III.F 2	III.F 2
III.F 3	III.F 3	III.F 3
III.F 4	III.F 4	III.F 4
III.F 5–III.F 6.		
III.F 7	III.F 7	III.F 7
III.F 8	III.F 8	III.F 8
III.F 9	III.F 9	III.F 9
III.F 10–III.F 12.		
III.F 13	III.F 13	III.F 13
III.F 14	III.F 14	III.F 14
III.F 15.		
III.F 16	III.F 16	III.F 16
III.F 17	III.F 17	III.F 17
III.F 18	III.F 18	III.F 18
III.F 19.		
III.F 20	III.F 20	III.F 20
III.F 21.		
III.F 22	III.F 22	III.F 22
III.F 23.		
III.F 24	III.F 24	III.F 24
Group G. Gross Product		
III.G 1–III.G 9		III.G 1–III.G 9
Group H. Employment and Compensation of Employees		
III.H 1–III.H 2.		
III.H 3	III.G 3	III.H 3
III.H 4	III.G 4	III.H 4
III.H 5.		
III.H 6	III.G 6	III.H 6
III.H 7	III.G 7	III.H 7
III.H 8–III.H 10.		
III.H 11	III.G 11	III.H 11
III.H 13–III.H 20.		

Table 1.—Comparison of Tables in This Publication With Those in the Publications for 1990–93 and the Publications for 1995–98—Continued

Table in this publication	Comparable table in publications for 1990–93	Comparable table in publications for 1995–98
Group I. U.S. Trade in Goods		
III.I 1	III.H 1	III.I 1
III.I 2	III.H 2	III.I 2
III.I 3–III.I 4.		
III.I 5	III.H 5	III.I 5
III.I 6–III.I 8.		
III.I 9	III.H 9	III.I 9
III.I 10–III.I 18.		
III.I 19	III.H 22	III.I 19
III.I 20–III.I 22.		
III.I 23	III.H 26	III.I 23
III.I 24–III.I 25.		
Group J. Technology		
III.J 1	partly in III.I 3.	
III.J 2	partly in III.I 2–5	partly in III.J 12
III.J 3		III.J 3
III.J 4.		
III.J. 5.	partly in III.I 2–5	partly in III.J 12
III.J 6–III.J 11.		
Group K. Other Financial and Operating Data		
III.K 1–III.K 3.		

NOTE.—This publication contains tables (in general subject matter groups W, X, Y, and Z) that show direct investment position and balance of payments data, as well as tables that show financial and operating data. The tables that show direct investment position and balance of payments data are not listed here, because they are outside the scope of the publications for 1990–93 and 1995–98, which cover only financial and operating data. Direct investment position and balance of payments data comparable with those in this publication, which are on a fiscal year basis, are not available (see text for discussion). However, direct investment position and balance of payments data are available on a calendar year basis for 1950–96 in other BEA publications.

Also not listed here are tables covering the financial and operating data of all foreign affiliates of all U.S. parents, nonbank affiliates of parents in banking, and bank affiliates of all parents. These data are also outside the scope of the publications for 1990–93 and 1995–98, which cover only financial and operating data of nonbank parents and their nonbank affiliates.

in goods of parents and affiliates by product and by destination or origin, compensation of and hours worked by production workers of manufacturing affiliates, sales by affiliates by country of destination—were collected in the last (1989) benchmark survey, but not in the annual surveys for nonbenchmark years.

Table 1 lists the tables in this publication and gives the comparable tables in the annual survey publications for 1990–93 and for 1995–98. To aid comparisons with the publications presenting the annual survey estimates for subsequent years, the table numbers in this publication are identical to those used in the annual survey publications for 1995–98. Many of the tables that appear in this publication do not have counterparts in the publications for 1990–93 or for 1995–98, primarily because the 1994 benchmark survey collected data for some items that were not collected in the annual surveys. If a comparable table for the other years is not available, no table numbers appear in table 1 in the columns for the other years' publications.

In some instances, data items collected separately in the benchmark survey may have been combined with other items in the annual survey. Thus, two or more items that were combined in a table in the annual survey publications may be shown separately in a table in this publication.

Coverage

The benchmark survey covered every U.S. person (as defined below) having a foreign affiliate—that is, having direct or indirect ownership or control of 10 percent or more of the voting securities of an incorporated foreign business enterprise or an equivalent interest in an unincorporated foreign business enterprise—at any time during its 1994 fiscal year. Reports were required even though the foreign business enterprise may have been established, acquired, liquidated, sold, or otherwise inactivated during the year.

Each benchmark survey report consisted of (1) Form BE-10A, which requested the data for the U.S. parent company, and (2) one or more Form BE-10B's, which requested the data for each of the parent's foreign affiliates that had total assets, sales, or net income (or loss) greater than $3 million or that owned another foreign affiliate for which a Form BE-10B had to be filed regardless of the size of its own assets, sales, or net income (or loss). On a supplement to Form BE-10A, U.S. parents had to list all foreign affiliates that were exempt from being reported on Form BE-10B and give a few selected data items—percentage ownership, total assets, sales, net income, employment size class, and direct investment position—for each. If all foreign affiliates of a U.S. parent were exempt from being reported on Form BE-10B, the U.S. parent was only required to file Part I, items 1–4 of Form BE-10A (to identify itself) and the Form BE-10A Supplement (to identify its exempt foreign affiliates).

U.S. parents and foreign affiliates in banking—that is, parents and affiliates that had over 50 percent of their total revenues generated by activities characteristic of depository institutions (banks, savings and loans, and credit unions)—were permitted to report less detailed financial and operating data than nonbank parents and affiliates. Less detail was required because most of the information on bank parents and affiliates that was needed for policymaking purposes already had to be reported to other U.S. Government agencies. Shorter, specialized forms for bank parents (Form BE-10A BANK) and for bank affiliates (Form BE-10B BANK) were substituted for the standard forms.

The reporting criteria for banks are similar to those for nonbanks; however, foreign bank affiliates that were owned indirectly 50 percent or less by their U.S. parents and that did not own a nonbank foreign affiliate for which a Form BE-10B had to be filed were exempt from being reported even if their total assets, sales, or net income (or loss) were greater than $3 million.

Based on the above criteria, complete BE-10A forms were filed by 2,727 U.S. parents, of which 60 were banks; 709 U.S. parents filed partial BE-10A forms because all their foreign affiliates were exempt. BE-10B forms were received for 22,332 foreign affiliates, of which 571 were banks; 7,328 foreign affiliates were listed by their U.S. parents as exempt from being reported on Form BE-10B.

In table 2, foreign affiliates for which BE-10B forms were filed are compared with all foreign affiliates in the 1994 direct investment universe. Affiliates for which BE-10B forms were filed accounted for 75.3 percent of the universe in terms of numbers. However, because of the relatively low exemption level on the form, they accounted for almost the entire universe in terms of value—99.9 percent of total assets, 99.7 percent of sales, 100.2 percent of net income, and 99.9 percent of the historical-cost U.S. direct investment position abroad. Thus, in terms of value, coverage of the universe is virtually complete.

Table 2.—Foreign Affiliates for Which BE-10B Forms Were Filed in the 1994 Benchmark Survey and the Universe of Foreign Affiliates

	Number of affiliates	Millions of dollars			
		Total assets	Sales	Net income	U.S. direct investment position abroad on a historical cost basis
Universe of foreign affiliates:					
Total	29,660	3,385,656	1,835,601	101,636	607,149
Nonbanks	28,669	2,381,523	1,762,216	93,831	581,257
Banks	991	1,004,133	73,385	7,805	25,892
Foreign affiliates for which BE-10B forms were filed:					
Total	22,332	3,380,983	1,830,744	101,792	606,393
Nonbanks	21,436	2,376,902	1,757,388	93,986	580,508
Banks	896	1,004,081	73,356	7,806	25,885
Foreign affiliates exempt from being reported on the BE-10B form:					
Total	7,328	4,673	4,857	–156	756
Nonbanks	7,233	4,621	4,828	–155	749
Banks	95	52	29	–1	7
Addenda—Affiliates for which BE-10B forms were filed as a percentage of the universe:					
Total	75.3	99.9	99.7	100.2	99.9
Nonbanks	74.8	99.8	99.7	100.2	99.9
Banks	90.4	100.0	100.0	100.0	100.0

Nonbank affiliates for which BE-10B forms were filed accounted for 99.8 percent of total assets, 99.7 percent of sales, 100.2 percent of net income, and 99.9 percent of the historical-cost U.S. direct investment position of the nonbank affiliate universe. The corresponding percentages for bank affiliates were 100.0, 100.0, 100.0, and 100.0 percent, respectively.

Except for table 2, all tables in this publication cover only foreign affiliates for which BE-10B forms were filed and their U.S. parents. Thus, when the term "all foreign affiliates" is used, it refers to all foreign affiliates for which BE-10B forms were filed, not to the universe of affiliates shown in table 2.

Basic Concepts and Definitions

This section describes the basic concepts and definitions used in the 1994 benchmark survey. Major differences between these concepts and definitions and those used in BEA's last benchmark survey, which covered 1989, and in other BEA surveys of U.S. direct investment abroad since 1989 are noted.

Direct investment

Direct investment implies that a person in one country has a lasting interest in, and a degree of influence over the management of, a business enterprise in another country. For the United States, in accordance with international guidelines, ownership or control by a single person of 10 percent or more of an enterprise's voting securities or the equivalent is considered evidence of such a lasting interest or degree of influence over management.[5] Thus, U.S. direct investment abroad is the ownership or control, directly or indirectly, by one U.S. person of 10 percent or more of the voting securities of an incorporated foreign business enterprise or an equivalent interest in an unincorporated foreign business enterprise. Only U.S. investment abroad that is direct investment was covered by the 1994 benchmark survey.

Direct investment in a foreign business enterprise can result from direct or indirect ownership by a U.S. person. In direct ownership, the U.S. person holds the ownership interest in the foreign business enterprise. In indirect ownership, one

5. See International Monetary Fund (IMF), *Balance of Payments Manual*, 5th ed. (Washington, DC: IMF, 1993); and Organisation for Economic Co-Operation and Development (OECD), OECD *Benchmark Definition of Foreign Direct Investment*, 3rd ed. (Paris: OECD, 1996)

or more tiers of ownership exist between the foreign business enterprise and the U.S. person. A U.S. person's percentage of indirect voting ownership in a given foreign business enterprise is equal to the direct-voting-ownership percentage of the U.S. person in the first foreign business enterprise in the ownership chain multiplied by that first enterprise's direct-voting-ownership percentage in the second foreign business enterprise in the chain multiplied by the corresponding percentages for all other intervening enterprises in the chain multiplied by the last intervening enterprise's direct-voting-ownership percentage in the given foreign business enterprise. If more than one ownership chain exists, the percentages of direct and indirect ownership in all chains are summed to determine the U.S. person's ownership percentage.

Direct investment refers to ownership by a single person, not to the combined ownership of all persons in a country. A "person" is broadly defined to include any individual, branch, partnership, associated group, association, estate, trust, corporation or other organization (whether organized or not under the laws of any State), and any government (including a foreign government, the U.S. Government, a State or local government, and any agency, corporation or financial institution, or other entity or instrumentality thereof, including a government-sponsored agency).

An associated group consists of two or more persons who exercise their voting privileges in a concerted manner by the appearance of their actions, by agreement, or by understanding in order to influence the management of a business enterprise. The following are deemed to be associated groups: (1) Members of the same family, (2) a business enterprise and one or more of its officers and directors, (3) members of a syndicate or joint venture, and (4) a corporation and its domestic subsidiaries. Thus, direct investment is considered to exist as long as the combined ownership interests of all members of the group is at least 10 percent, even if no member owns 10 percent or more. The definition assumes, in effect, that the members' influence over management is comparable to that of a single person with the same ownership interest.

Investment by a U.S. person of less than 10 percent in a foreign business enterprise is not considered direct investment, even if another U.S. person has an interest of a least 10 percent in the enterprise. Thus, if one U.S. person owns 11 percent and another owns 9 percent, the 11-percent interest is included, but the 9-percent interest is excluded. However, if two or more U.S. persons each hold an interest of at least 10 percent, each such interest is included.

Determination of residency

For purposes of the benchmark survey (and BEA's other direct investment surveys), the "United States" means the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, and all U.S. territories and possessions. U.S. offshore oil and gas sites are also considered to be in the United States.

"Foreign" means that which is situated outside the United States or that belongs to, or is characteristic of, a country other than the United States.

The country of residence, rather than the country of citizenship, of a person is used to determine whether a direct investor or the business enterprise owned by a direct investor is U.S. or foreign. A U.S. person is any person who resides in, or is subject to the jurisdiction of, the United States, and a foreign person is any person who resides outside the United States or who is subject to the jurisdiction of a country other than the United States.

A person is considered a resident of, or is subject to the jurisdiction of, the country in which the person is located if the person resides or expects to reside in that country for 1 year or more. Under this rule, persons who reside or expect to reside outside their country of citizenship for less than 1 year are considered residents of their country of citizenship, whereas persons who reside or expect to reside outside their country of citizenship for 1 year or more are considered residents of the country in which they are residing.

There are two exceptions to this rule. First, individuals (and their immediate families) who either own or are employed by a business in their country of citizenship and who are residing outside of that country for 1 year or more in order to conduct business for the enterprise are considered residents of their country of citizenship if they intend to return within a reasonable period of time. Second, individuals who reside outside their country of citizenship because they are government employees (such as diplomats, consular officials, members of the armed forces, and their immediate families) are considered residents of their country of citizenship regardless of their length of stay.

The U.S. parent

A U.S. parent is a U.S. person who has direct investment—that is, a 10-percent-or-more direct or indirect ownership interest—in a foreign business enterprise. Because a U.S. parent is a "person" in the broad sense defined above, it may be a business enterprise; a religious, charitable, or other nonprofit organization; an individual; a government; an estate or trust; and so forth. Most U.S. parents are business enterprises. A business enterprise is any organization, association, branch, venture, or the ownership of any real estate that exists to make a profit or to otherwise secure economic advantage.[6]

If incorporated, the U.S. parent is the fully consolidated U.S. enterprise that consists of (1) the U.S. parent corporation whose voting securities are not owned more than 50 percent by another U.S. corporation, and (2) proceeding down each ownership chain from that U.S. corporation, any U.S. corporation (including Foreign Sales Corporations located within the United States) whose voting securities are more than 50 percent owned by the U.S. corporation above it. All other U.S. corporations and all foreign business enterprises owned by the U.S. parent are excluded from the full consolidation.

Where a U.S. individual or other nonbusiness person (such as a nonprofit organization or a government) owns more than 50 percent of a U.S. business enterprise that, in turn, owns a foreign business enterprise, the U.S. business enterprise, not the individual or other nonbusiness person, is considered the parent. This treatment ensures that financial and operating data of the U.S. business enterprise are included in the U.S.-parent data and that data on the transactions and positions of the U.S. business enterprise with the foreign business enterprise are included in the foreign-affiliate data reported to BEA. Any direct transactions or positions of the individual or other nonbusiness person with the foreign business enterprise must be reported by the U.S. business enterprise and are, therefore, also included in the direct investment accounts.

Although the U.S. Government may have equity investment in a foreign business enterprise, such investment is not covered by BEA's direct investment surveys. Data on such investment are reported to other agencies and are included by BEA in the U.S. Government accounts, rather than in the direct investment accounts, of the U.S. international transactions accounts.

In the case of a U.S. estate, the estate itself, not its beneficiary, is considered the U.S. parent. For a U.S. trust, however, either the beneficiary or the creator of the trust may be considered the U.S. parent with respect to any investments of the trust, depending on the circumstances. The creator is considered the parent if there is a reversionary interest—that is, if the interest in the trust may be returned to the creator after a period of time—or if the creator is a corporation or other organization that designates its own shareholders or members as beneficiaries. In all other cases, the beneficiary is considered the parent.

The foreign affiliate

A foreign affiliate is a foreign business enterprise in which there is U.S. direct investment; that is, it is a foreign business enterprise that is directly or indirectly owned or controlled by one U.S. person to the extent of 10 percent or more of the voting securities for an incorporated business enterprise or an equivalent interest for an unincorporated business enterprise. The affiliate is called a *foreign* affiliate to denote that it is located outside the United States.

A business enterprise, and therefore an affiliate, may be either incorporated or unincorporated. Unincorporated business enterprises primarily take the form of branches and partnerships.

A foreign affiliate that is a branch consists of operations or activities in a foreign country that a U.S. person conducts in its own name rather than through an entity separately incorporated abroad. By definition, a branch is wholly owned. If a company is incorporated in the United States but carries out substantially all of its operations abroad, its foreign operations are treated by BEA as a branch (and, therefore, as a foreign affiliate) even though the U.S. company itself may consider the operations to be an integral part of, and would normally consolidate them with, its own operations and accounts.

In general, the foreign operations or activities of a U.S. person are considered to be a foreign affiliate if they are legally or functionally separable from the domestic operations or activities of the U.S. person. In most cases, it is clear whether the foreign operations or activities constitute a foreign affiliate. If an operation or activity is incorporated abroad—as most are—it is *always* considered a foreign affiliate. The situation is not always so clear with unincorporated

6. Ownership of real estate for profit-making purposes is defined to be a business enterprise, but ownership of real estate exclusively for personal use is not. A residence that is leased to others by an owner who intends to reoccupy it is considered real estate held for personal use and not a business enterprise.

foreign operations or activities. Most are legally or functionally separable from those of the U.S. person, but some are not clearly separable, and the determination of whether they constitute a foreign affiliate is made on a case-by-case basis, depending on the weight of the evidence.

The following characteristics would indicate that the unincorporated operation or activity is probably a foreign affiliate:

- It pays foreign income taxes.
- It has a substantial physical presence abroad, as evidenced by plant and equipment or by employees that are permanently located abroad.
- It has separate financial records that would allow the preparation of financial statements, including a balance sheet and income statement. (A mere record of disbursements to, or receipts from, the foreign operation or activity would not constitute a "financial statement" for this purpose.)
- It takes title to the goods it sells and receives revenues from the sale, or it receives funds from customers for its own account for services it performs.

The following characteristics would indicate that the unincorporated operation or activity is probably *not* a foreign affiliate:

- It engages only in sales promotion or public relations activities on behalf of the U.S. person.
- It conducts business abroad only for the U.S. person's account, not for its own account.
- It has no separate financial records that allow the preparation of financial statements.
- Its expenses are paid by the U.S. parent.
- It pays no foreign income taxes.
- It has limited physical assets or few employees permanently located abroad.

Consistent with these guidelines, the foreign stations, ticket offices, and terminal or port facilities of a U.S. airline or ship operator that provide services only to the airline's or ship operator's own operations are not considered foreign affiliates, because most of the revenues, such as passenger fares and freight charges, collected by these facilities are generated by the travel and transportation services rendered by the airline or ship operator of which they are a part, not by the activities of these facilities. However, if the facilities provide services to unaffiliated persons rather than to the U.S. airline or ship operator that owns them, they are considered foreign affiliates.

In general, each foreign affiliate was required to be reported separately. However, consolidation of affiliates in the same country was permitted if the affiliates were in the same three-digit industry or were integral parts of the same business operation.[7] (As an example of the latter, if Mexican affiliate A manufactured automobile engines and a majority of its sales were to Mexican affiliate B, which assembled automobiles, then affiliates A and B could have been consolidated.) Under no circumstances were affiliates in different countries permitted to be consolidated.

A majority-owned foreign affiliate (MOFA) is a foreign affiliate in which the combined direct and indirect ownership interest of all U.S. parents exceeds 50 percent. Data for MOFA's rather than for all foreign affiliates are required in order to examine the foreign investments over which U.S. parents exert unambiguous control.[8] Additionally, some aspects of affiliate operations can only be analyzed from the perspective of MOFA operations, because the necessary data items are not collected for other affiliates.

A small percentage of MOFA's are majority owned by a group of U.S. parents in which none of the parents has a majority stake. The group usually influences or controls the management of the affiliate as a single parent that has the same total ownership interest would. Most of these jointly owned MOFA's are in the petroleum industry, where parents sometimes pool their resources in order to raise capital or to mitigate risk.

Accounting Principles

Use of generally accepted accounting principles

Data in the 1994 benchmark survey were required to be reported as they would have been for stockholders' reports rather than for tax or other purposes. Thus, U.S. generally accepted accounting principles (GAAP) were followed unless otherwise indicated by the survey instructions. The survey instructions departed from GAAP in cases where the departure would result in data that were conceptually or analytically more useful or more appropriate for direct investment purposes. One major departure from GAAP was the

7. For a description of the industry codes used, see BEA's *Guide to Industry and Foreign Trade Classifications for International Surveys* in the appendix.

8. However, the U.S. parent(s) may be under the control of a foreign parent company. In 1994, U.S. parents that were ultimately controlled by foreign parents accounted for 11 percent of all U.S. parents, and they accounted for 11 percent of the assets and for 14 percent of the sales of all U.S. parents.

use of the unique consolidation rules (see the preceding discussions of consolidated reporting in "The U.S. Parent" and in "The Foreign Affiliate" in the section "Basic Concepts and Definitions").

Currency translation

Monetary amounts were reported to BEA in U.S. dollars. The report forms specified that when a foreign affiliate's assets, liabilities, revenues, and expenses were denominated or measured in the affiliate's financial statements in a foreign currency, they must be translated into dollars in accordance with GAAP, specifically Financial Accounting Standards Board Statement No. 52 (FASB 52).

Under FASB 52, all assets, liabilities, revenues, and expenses are translated at current exchange rates. For assets and liabilities, the exchange rate as of the balance sheet date is used. For revenues and expenses, weighted-average exchange rates for the period are used.

Under FASB 52, exchange gains and losses resulting from remeasuring the foreign affiliates' assets and liabilities that are denominated in foreign currencies other than the affiliate's principal, or functional, currency into the functional currency at exchange rates that differ from those used in the prior period are included in affiliates' net income. However, exchange gains and losses that result from translating opening balances for foreign affiliates' assets and liabilities from the functional currency into U.S. dollars at exchange rates different from those for closing balances are taken directly to a separate component of owners' equity, entitled "translation adjustments," rather than being included in net income. The effects of translating foreign affiliates' revenues and expenses from their functional currency into U.S. dollars at exchange rates different from those in the prior period are reflected in net income, but they are not separately identified, and because they do not represent changes in the values of assets or liabilities, they are not regarded as capital gains or losses. (For a more complete description of translation procedures, refer to FASB 52.)

Valuation

The 1994 benchmark survey data are, for the most part, valued in the prices and exchange rates of 1994. Because 1994 prices and exchange rates may differ from those of other years, changes in U.S.-parent and foreign-affiliate data over time may reflect changes in prices and exchange rates rather than real changes. In addition, the accuracy of intercountry comparisons of foreign affiliate data may be affected if the market exchange rates used to translate foreign-affiliate data to U.S. dollars do not reflect the relative purchasing power of different currencies.[9]

Some benchmark survey items—such as property, plant and equipment, and the direct investment position—are valued at historical cost rather than in 1994 prices. For these items, the values shown largely reflect prices at the time the asset was acquired or the investment was made rather than prices of 1994.[10]

Fiscal Year Reporting

Data for foreign affiliates and U.S. parents were required to be reported on a fiscal year basis. The 1994 fiscal year was defined to be the affiliate's or parent's financial-reporting year that ended in calendar year 1994.

The fiscal year data from the benchmark survey that are presented in this publication are not comparable with the calendar year estimates of transactions between foreign affiliates and their U.S. parents that appear in the U.S. international transactions accounts or with the calendar year estimates of the U.S. direct investment position abroad. The benchmark survey data must be adjusted to a calendar year basis before they are entered into the U.S. direct investment position abroad and the international transactions accounts.

The extent of noncomparability between the benchmark survey data presented here and the direct investment estimates that will be presented in the U.S. direct investment position and balance of payments accounts depends on the number and size of foreign affiliates and U.S. parents whose fiscal years do not correspond to the calendar year. Figures on the number of foreign affiliates and U.S. parents that have fiscal years that do not correspond to the calendar year and on the portion of the benchmark survey data accounted for by these foreign affiliates and U.S. parents are shown in tables 3–5.

Confidentiality

Under the International Investment and Trade in Services Survey Act, the direct investment data

9. For further discussion of valuation issues and for the results of an initial BEA attempt to remove valuation effects from its measures of the activities of U.S. multinational companies, see "Real Gross Product of U.S. Companies' Majority-Owned Foreign Affiliates in Manufacturing," SURVEY OF CURRENT BUSINESS 77 (April 1997): 8-17.

10. For further discussion of historical-cost valuation of the direct investment position see the section "U.S. direct investment position abroad."

collected by BEA are confidential; they cannot be published in such a manner "that the person to whom the information relates can be specifically identified" without the prior written permission of the respondent. For this publication, each cell in a table was tested to determine whether the data it contained should be suppressed (that is, not shown) for confidentiality reasons. A "(D)" in a cell indicates that the data were suppressed to avoid the disclosure of information on an individual company. For employment data, a letter representing a size range was entered in place of a "(D)."

The act further stipulates that the data must be used for statistical and analytical purposes only; the use of an individual company's data for tax, investigative, or regulatory purposes is prohibited. Access to the data is limited to officials and employees (including consultants and contractors and their employees) of Government agencies designated by the President to perform functions under the act.

Private individuals may obtain access to the data only in the capacity of experts, consultants, or contractors whose services are procured by BEA, usually on a temporary or intermittent basis, for purposes of carrying out projects under the act—for example, to perform research on U.S. direct investment abroad. These people are subject to the same confidentiality requirements as regular employees of BEA or other government agencies performing functions under the act.

Classification of Data by Country and by Industry

Country classification

Each foreign affiliate is classified by its country of location—that is, the country in which the affiliate's physical assets are located or in which its primary activity is carried out. In most cases, the country of location of a business enterprise is the same as its country of organization or incorporation. However, in some cases, a business enterprise is incorporated in one country, but part or all of its physical assets are located, or its activities carried out, in a second country. If all its physical assets or operations are located in a single foreign country outside its country of incorporation, the enterprise is treated as an incorporated foreign affiliate in the country where its physical assets and operations are located. If, however, an enterprise has some physical assets or operations in each country, it is considered two separate affiliates—an incorporated affiliate located in the country of incorporation and an unincorporated affiliate (a branch) located in the other country.

There are two exceptions to these general rules. First, if a business enterprise incorporated in one foreign country has physical assets or operations in more than one other foreign country, an incorporated foreign affiliate is deemed to exist in the country of incorporation, even though the enterprise may have no physical assets or operations in that country. Unincorporated foreign affiliates (branches) are deemed to exist in the other foreign countries. In effect, the affiliate in the country of incorporation is considered a

Table 3.—Selected Data for All Foreign Affiliates and All U.S. Parents by Fiscal Year Ending Date

	Total	Fiscal year ending date				
		January 1 to March 31	April 1 to June 30	July 1 to September 30	October 1 to December 31	Addendum: December 31
Affiliate data						
Number of affiliates	22,332	1,099	2,124	1,896	17,213	14,408
Total assets (millions of dollars)	3,380,983	79,476	119,449	86,507	3,095,550	2,728,127
Sales (millions of dollars)	1,830,744	78,472	145,736	81,642	1,524,894	1,317,440
Net income (millions of dollars)	101,792	1,574	4,281	2,628	93,309	78,727
Number of employees (thousands)	7,240.5	327.1	635.4	426.6	5,851.5	4,952.2
Compensation of employees (millions of dollars)	230,629	10,451	17,354	12,484	190,339	161,459
U.S. direct investment position abroad on a historical-cost basis (millions of dollars)	606,393	15,085	34,024	29,182	528,102	467,840
Direct investment income (millions of dollars)	67,596	1,026	3,432	2,290	60,848	52,947
U.S. parent data						
Number of U.S. parents	2,727	221	306	288	1,912	1,722
Total assets (millions of dollars)	8,636,571	199,776	215,709	185,211	8,035,874	7,556,632
Sales (millions of dollars)	4,148,552	245,185	277,540	220,838	3,404,989	3,183,907
Net income (millions of dollars)	214,352	3,259	10,750	4,633	195,710	182,419
Number of employees (thousands)	19,330.0	1,504.4	1,400.4	1,234.6	15,190.6	13,981.9
Compensation of employees (millions of dollars)	840,608	28,852	51,748	49,998	710,009	653,746

Table 4.—Number and Total Assets of All Foreign Affiliates, Industry and Country of Affiliate by Fiscal Year Ending Date

	Total	Fiscal year ending date				
		January 1 to March 31	April 1 to June 30	July 1 to September 30	October 1 to December 31	Addendum: December 31
	Number of affiliates					
Total	**22,332**	**1,099**	**2,124**	**1,896**	**17,213**	**14,408**
By industry						
Petroleum	1,508	12	30	90	1,376	1,368
Manufacturing	8,018	402	784	817	6,015	4,890
Food and kindred products	796	25	146	132	493	425
Chemicals and allied products	1,917	77	159	155	1,526	1,217
Primary and fabricated metals	717	20	62	65	570	485
Industrial machinery and equipment	1,016	60	79	105	772	555
Electronic and other electric equipment	844	72	85	118	569	492
Transportation equipment	449	20	11	52	366	320
Other manufacturing	2,279	128	242	190	1,719	1,396
Wholesale trade	5,058	348	699	604	3,407	2,590
Depository institutions	571	2	2	1	566	552
Finance (except depository institutions), insurance, and real estate	2,981	71	190	121	2,549	2,186
Services	2,705	185	254	195	2,071	1,768
Other industries	1,491	79	165	68	1,179	1,054
By country						
Canada	2,094	139	192	197	1,566	1,405
Europe	10,781	520	1,155	1,016	8,090	6,620
Of which:						
France	1,262	69	130	128	935	743
Germany	1,403	79	145	139	1,040	845
Netherlands	1,013	46	153	102	712	580
United Kingdom	2,546	131	256	237	1,922	1,629
Latin America and Other Western Hemisphere	3,603	101	269	237	2,996	2,570
Of which:						
Brazil	448	18	37	27	366	310
Mexico	846	27	79	72	668	584
Africa	516	23	31	33	429	381
Middle East	354	7	20	12	315	277
Asia and Pacific	4,877	302	451	399	3,725	3,069
Of which:						
Australia	864	44	98	85	637	530
Japan	1,042	148	80	104	710	569
International	107	7	6	2	92	86
	Total assets (millions of dollars)					
Total	**3,380,983**	**79,476**	**119,449**	**86,507**	**3,095,550**	**2,728,127**
By industry						
Petroleum	253,947	440	3,088	2,332	248,086	247,903
Manufacturing	678,637	43,631	50,628	39,594	544,785	454,020
Food and kindred products	91,439	10,574	13,345	9,142	58,378	54,242
Chemicals and allied products	148,707	2,296	14,307	5,259	126,845	108,975
Primary and fabricated metals	30,376	463	1,436	1,636	26,842	22,363
Industrial machinery and equipment	98,608	3,239	5,828	9,729	79,813	61,676
Electronic and other electric equipment	53,152	3,177	3,814	6,061	40,100	34,806
Transportation equipment	118,136	(D)	473	(D)	98,030	85,162
Other manufacturing	138,218	(D)	11,425	(D)	114,777	86,796
Wholesale trade	180,874	7,237	18,200	16,228	139,210	106,907
Depository institutions	895,428	(D)	(D)	(D)	894,818	874,037
Finance (except depository institutions), insurance, and real estate	1,099,206	12,005	19,994	15,219	1,051,987	849,273
Services	106,493	7,578	9,664	8,899	80,352	70,313
Other industries	166,398	(D)	(D)	(D)	136,313	125,673
By country						
Canada	237,490	13,768	9,684	7,073	206,965	189,587
Europe	1,837,846	23,693	64,898	53,747	1,695,508	1,488,469
Of which:						
France	133,496	1,585	7,554	10,400	113,957	106,819
Germany	225,964	2,520	7,452	7,304	208,689	190,731
Netherlands	128,555	1,303	13,345	8,005	105,902	92,039
United Kingdom	913,546	12,232	17,309	11,468	872,537	751,196
Latin America and Other Western Hemisphere	468,889	5,972	10,091	7,221	445,605	404,028
Of which:						
Brazil	52,036	608	2,301	1,389	47,738	43,023
Mexico	59,905	486	2,124	1,410	55,886	50,716
Africa	23,708	430	1,243	714	21,322	20,469
Middle East	66,486	(D)	655	(D)	65,383	64,218
Asia and Pacific	731,380	35,272	32,784	17,296	646,027	550,888
Of which:						
Australia	98,585	962	11,214	1,757	84,652	81,150
Japan	291,922	26,246	7,018	9,522	249,137	196,491
International	15,184	(D)	95	(D)	14,740	10,468

D Suppressed to avoid disclosure of data of individual companies.

holding company whose assets are the equity it holds in the unincorporated affiliates in the other countries. Second, if a business enterprise incorporated abroad by a U.S. person conducts its operations from, and has all of its physical assets in, the United States, it is treated as an incorporated foreign affiliate in the country of incorporation, even though it has no operations or physical assets there. This treatment ensures that the foreign entity is reported to BEA.

Balance of payments transactions between parents and affiliates are recorded against the country of the affiliate with which the U.S. parent had a direct transaction, even if the transaction may reflect indirect claims on, liabilities to, or income from indirectly held affiliates in third countries. For example, suppose that a U.S. parent company acquires all of the equity of a German manufacturer for $100 million, channeling the purchase through its holding-company affiliate in the Netherlands. Both the direct investment capital flow and the direct investment position would be recorded against the Netherlands, because that is the country of the affiliate with which the U.S. parent had a direct transaction. (By contrast, the financial and operating data—such as employment and sales data—of the newly acquired affiliate would be shown in Germany because that is where the operations are located.)

Transactions with third-country transactors involving a given affiliate are classified in the affiliate's country of location. For example, suppose a U.S. parent purchases a Japanese affiliate's capital stock from a French resident; the resulting direct investment capital flow would be classified in Japan because such flows change the U.S. direct investment position in that country. (However, the associated settlement flows, which would be included in other capital accounts of the U.S. international transactions accounts, would likely be classified in France.)

Unless otherwise specified, the designation "by country" in a table title in this publication indicates that the data in the table are disaggregated by country of foreign affiliate. If a different method of country disaggregation is used, it is specified in the table title; for example, trade data could be disaggregated either by country of affiliate or by country of origin or destination.

In table II.A1, selected data for all nonbank foreign affiliates of nonbank U.S. parents are classified by country of affiliate; each individ-

Table 5.—Number and Total Assets of All U.S. Parents, Industry of U.S. Parent by Fiscal Year Ending Date

	Total	Fiscal-year ending date				
		January 1 to March 31	April 1 to June 30	July 1 to September 30	October 1 to December 31	Addendum: December 31
	Number of parents					
All industries	**2,727**	**221**	**306**	**288**	**1,912**	**1,722**
Petroleum	106	1	6	13	86	82
Manufacturing	1,552	113	193	193	1,053	923
Food and kindred products	80	5	16	19	40	34
Chemicals and allied products	207	14	15	13	165	147
Primary and fabricated metals	187	12	21	21	133	124
Industrial machinery and equipment	274	22	36	38	178	154
Electronic and other electric equipment	211	19	31	38	123	105
Transportation equipment	82	3	7	11	61	53
Other manufacturing	511	38	67	53	353	306
Wholesale trade	250	44	29	28	149	137
Depository institutions	60	0	0	0	60	60
Finance (except depository institutions), insurance, and real estate	230	11	11	10	198	192
Services	281	33	47	31	170	149
Other industries	248	19	20	13	196	179
	Total assets (millions of dollars)					
All industries	**8,636,571**	**199,776**	**215,709**	**185,211**	**8,035,874**	**7,556,632**
Petroleum	529,129	(D)	8,354	(D)	510,880	510,793
Manufacturing	2,296,314	50,917	136,032	119,833	1,989,535	1,826,345
Food and kindred products	246,480	10,701	52,111	27,098	156,570	150,334
Chemicals and allied products	416,463	5,018	30,756	12,631	368,058	341,750
Primary and fabricated metals	104,978	4,254	5,932	4,351	90,442	88,379
Industrial machinery and equipment	232,323	3,228	9,293	29,934	189,869	149,803
Electronic and other electric equipment	308,979	10,188	10,812	23,038	264,942	244,892
Transportation equipment	534,200	2,347	5,326	6,574	519,952	502,867
Other manufacturing	452,891	15,181	21,802	16,207	399,702	348,320
Wholesale trade	126,043	32,945	6,826	13,529	72,743	67,490
Depository institutions	1,918,568	0	0	0	1,918,568	1,918,568
Finance (except depository institutions), insurance, and real estate	2,512,799	43,734	3,952	34	2,465,079	2,195,192
Services	227,916	12,437	37,606	31,226	146,647	135,282
Other industries	1,025,802	(D)	22,942	(D)	932,423	902,963

(D) Suppressed to avoid disclosure of data of individual companies.

ual country in which U.S. direct investment in 1994 was reported is shown separately and is grouped by geographic area. (Table III.A1 presents similar information for majority-owned foreign affiliates.) Primarily because of confidentiality requirements, many countries could not be shown separately in the other tables in this publication. However, the individual countries included in a country group shown in the other tables may be determined, and their relative sizes assessed, by referring to table II.A1.

In this publication, the "International" category consists of affiliates that have operations spanning more than one country and that are engaged in petroleum shipping, other water transportation, or offshore oil and gas drilling. Affiliates in these industries that have operations entirely in one country are classified in that specific country. Thus, an affiliate engaged in shipping goods among countries is classified in "International," whereas one engaged in local coastal or inland shipping is classified in the country along whose coast or on whose waterways it is operating. Similarly, an oil rig that was moved from place to place during the year is classified in "International," but one that was stationary for the entire year is classified in the country where it was located.

Industry classification

Each U.S. parent or foreign affiliate was classified by industry on the basis of its sales (or of its total income, for holding companies) in a three-stage procedure. First, a given U.S. parent or foreign affiliate was classified in the major industry that accounted for the largest percentage of its sales.[11]

Second, within the major industry, the U.S. parent or foreign affiliate was classified in the two-digit industry in which its sales were largest; a two-digit industry was defined to consist of all three-digit subindustries that have the same first two digits in their three-digit code.[12] Third, within its two-digit industry, the U.S. parent or foreign affiliate was classified in the three-digit subindustry in which its sales were largest. This procedure ensured that the U.S. parent or foreign affiliate was not assigned to a three-digit subindustry outside either its major industry or its two-digit industry.

11. The major industries used were agriculture, forestry, and fishing; mining; petroleum; construction; manufacturing; transportation, communication, and public utilities; wholesale trade; retail trade; finance, insurance, and real estate; and services.

12. The only exceptions to this rule were that codes 401, 449, 450, 462, 472, and 477 were treated as being in the same two-digit industry–transportation.

The following example illustrates the three-stage classification procedure. Suppose a parent's or an affiliate's sales were distributed as follows:

Industry code		Percentage of total sales
	All industries	**100**
	Manufacturing	**55**
35	Industrial machinery and equipment	30
351	Engines and turbines	5
352	Farm and garden machinery	10
353	Construction, mining, and materials handling machinery	15
36	Electronic and other electric equipment	25
367	Electronic components and accessories	25
	Wholesale trade	**45**
50	Durable goods	45
508	Machinery, equipment, and supplies	45

Because 55 percent of the parent's or affiliate's sales were classified in manufacturing and only 45 percent were classified in wholesale trade, the parent's or affiliate's major industry is manufacturing. Within manufacturing, 30 percent of its sales were accounted for by sales in two-digit industry 35 (industrial machinery and equipment)(the sum of the percentages in 351, 352, and 353), and 25 percent were in two-digit industry 36 (electronic and other electric equipment); therefore, the parent's or affiliate's two-digit industry is 35. Finally, because its sales within industry 35 were largest in subindustry 353, the parent's or affiliate's three-digit subindustry is 353. Thus, because of the three-stage classification procedure, the parent or affiliate was assigned to subindustry 353, even though its sales in that subindustry were smaller than its sales in either subindustries 508 or 367. Unless otherwise specified, the designation "by industry" in the title of a table in this publication indicates that the data in the table are disaggregated by industry of foreign affiliate. Exceptions to this rule are specified in the table title; for example, in some tables, affiliate data are disaggregated by industry of their U.S. parent.

The direct investment data are collected at the enterprise level, and each enterprise is classified in a single industry on the basis of its major activity. In contrast, the Standard Industrial Classification (SIC) is designed for classifying individual establishments (or plants) within an enterprise. Because many direct investment enterprises are active in several industries, it is not meaningful to classify all their data in a single industry if that industry is defined too narrowly. Accordingly, BEA has limited the detail in which it classifies U.S. parents and foreign affiliates by industry to a subset of the detail that is available in the SIC system.

In BEA's direct investment statistics, including those presented in this publication, petroleum is presented as a "major industry" that consolidates all the activities associated with petroleum production, transportation, and distribution. Consequently, these activities are excluded from the major industries in which they would otherwise be included. In particular, *manufacturing* excludes petroleum and coal products manufacturing, *mining* excludes oil and gas extraction, *wholesale trade* excludes petroleum wholesale trade, *retail trade* excludes gasoline service stations, and *transportation* excludes petroleum tanker operations, pipelines, and storage.

Beginning with the 1994 benchmark survey and reflecting a change in the 1987 SIC, savings institutions and credit unions are included in the industry "depository institutions," which also includes banks. Thus, the data for savings institutions and credit unions appear in the tables for "bank parents and affiliates" rather than in those for "nonbank parents and affiliates." Previously, these entities were classified as "nonbank parents and affiliates" in the industry "finance, except banking." This change has no material effect on comparisons of the data for 1993 and 1994, because in 1993, only one U.S. parent was classified as a savings institution or a credit union.

U.S. parents that are individuals, estates, or trusts were classified in the industry "nonbusiness entities, except government," which, in this publication, is treated as part of the major industry "finance, insurance, and real estate." This industry is included in tables that disaggregate affiliate data by industry of U.S. parent. It is not included in tables containing U.S.-parent data, because U.S. parents that were individuals, estates, or trusts were not required to report financial and operating data.

Table II.A2 presents selected data for nonbank foreign affiliates and nonbank U.S. parents classified by industry; each three-digit subindustry except depository institutions is shown separately and is grouped by the major industry to which it belongs. Table III.A2 presents similar data for majority-owned nonbank affiliates. Primarily because of confidentiality requirements, many of the three-digit industry categories are not shown in the other tables in this publication. However, each industry included, but not identified, in an industry group in the other tables may be ascertained by referring to table II.A2 or III.A2.

Each U.S. parent and foreign affiliate was classified in a single industry, even though many parents and affiliates had activities in more than one industry. As a result, the distribution of data by industry of U.S. parent or foreign affiliate differs from the distribution that would result if each activity of a parent or an affiliate was classified by industry. In the benchmark survey, sales by U.S. parents and foreign affiliates and employment by U.S. parents were classified by activity. Specifically, each U.S. parent was required to distribute its sales and employment among the eight three-digit subindustries in which its sales were largest and to distribute the sales of each foreign affiliate among the five three-digit subindustries in which the affiliate's sales were largest. Unspecified sales and employment are shown in the "not specified by industry" row or column in the tables that display data by industry of sales. Because a parent or affiliate that has an establishment in an industry usually also has sales in that industry, the distribution by industry of sales roughly approximates the distribution that would result if the data were reported and classified by industry of establishment.

In table 6, U.S. parents' sales and employment disaggregated by industry of sales are compared with their sales and employment disaggregated by industry of parent, and foreign affiliates' sales disaggregated by industry of sales are compared with their sales disaggregated by industry of affiliate. (For nonbank parents of nonbank affiliates, data by industry of sales cross-classified by industry of parent are shown in table II.Q2 for sales and table II.S2 for employment; for nonbank affiliates of nonbank parents and for majority-owned nonbank affiliates of nonbank parents, sales by industry of sales cross-classified by industry of affiliate are shown in tables II.F24 and III.F24, respectively.)

For sales, differences between the distribution by industry of enterprise and the distribution by industry of sales were much larger for U.S. parents than for foreign affiliates, primarily because U.S. parents are more diversified than their affiliates. Their greater diversity partly reflects the much greater degree of consolidation of U.S. parents.

Estimation and General Validity of the Data

A completed benchmark survey form was required for affiliates that had total assets, sales, or net income (or losses) greater than $3 million. Either a long form or a short form was required, depending on the size of the affiliate.[13]

13. Facsimiles of these forms appear in the appendix.

Table 6.—Sales by All Foreign Affiliates and Sales by, and Employment of, All U.S. Parents, by Industry of Enterprise and by Industry of Sales

	Affiliate data		U.S. parent data			
	Sales (millions of dollars)		Sales (millions of dollars)		Number of employees (thousands)	
	By industry of affiliate	By industry of sales	By industry of U.S. parent	By industry of sales	By industry of U.S. parent	By industry of sales [1]
All industries	**1,830,744**	**1,830,744**	**4,148,552**	**4,148,552**	**19,330.0**	**19,330.0**
Petroleum	**294,223**	**285,400**	**368,949**	**327,322**	**510.3**	**365.5**
Oil and gas extraction	51,310	50,284	8,832	13,084	45.1	59.2
Crude petroleum extraction (no refining) and natural gas	46,659	45,319	5,079	8,383	11.5	16.7
Oil and gas field services	4,651	4,965	3,753	4,701	33.6	42.5
Petroleum and coal products	108,691	106,097	272,270	213,673	396.1	216.6
Integrated petroleum refining and extraction	33,070	33,144	255,049	188,858	362.1	184.6
Petroleum refining without extraction	73,395	70,704	15,092	19,822	26.6	13.6
Petroleum and coal products, not elsewhere classified	2,225	2,250	2,129	4,993	7.4	18.5
Petroleum wholesale trade	108,785	105,277	76,749	79,491	41.4	24.8
Other	25,438	23,743	11,099	21,073	27.7	64.9
Petroleum tanker operations	4,107	4,253	482	721	3.1	7.5
Petroleum and natural gas pipelines	1,450	1,995	(D)	13,839	24.2	25.2
Petroleum storage for hire	671	802	(D)	636	.4	2.6
Gasoline service stations	19,210	16,693	0	5,877	0	29.6
Manufacturing	**847,721**	**811,184**	**1,903,437**	**1,717,380**	**9,049.3**	**7,889.4**
Food and kindred products	104,978	103,346	264,097	206,956	1,269.9	821.4
Grain mill and bakery products	23,724	23,731	53,820	49,489	276.8	173.4
Grain mill products	20,006	20,249	35,076	36,150	195.7	83.2
Bakery products	3,718	3,483	18,744	13,339	81.1	90.2
Beverages	34,128	32,385	93,567	44,298	546.7	182.1
Other	47,126	47,230	116,709	113,169	446.4	466.0
Meat products	3,182	4,197	72,205	32,681	246.1	158.2
Dairy products	4,531	5,050	8,104	13,550	25.6	42.0
Preserved fruits and vegetables	7,322	6,718	15,281	21,423	82.1	83.4
Other food and kindred products	32,091	31,266	21,120	45,515	92.6	182.3
Chemicals and allied products	153,806	148,713	300,381	261,172	1,119.2	801.5
Industrial chemicals and synthetics	62,286	59,407	118,997	110,100	427.8	307.9
Drugs	40,039	39,673	100,097	68,345	392.2	242.4
Soap, cleaners, and toilet goods	31,395	27,703	48,547	33,683	170.1	100.2
Agricultural chemicals	4,303	5,511	7,009	13,949	20.3	36.3
Chemical products, not elsewhere classified	15,783	16,418	25,731	35,096	108.8	114.7
Primary and fabricated metals	30,188	31,029	107,109	103,405	562.7	529.0
Primary metal industries	10,180	10,175	64,616	54,685	293.2	211.0
Ferrous	1,919	1,808	27,925	30,120	121.2	117.1
Nonferrous	8,261	8,367	36,691	24,565	172.0	93.9
Fabricated metal products	20,009	20,854	42,493	48,720	269.5	318.0
Metal cans, forgings, and stampings	6,791	6,893	16,385	13,188	79.6	56.2
Cutlery, hand tools, and screw products	4,231	4,122	9,560	9,409	63.1	77.0
Heating and plumbing equipment and structural metal products	2,273	2,495	8,950	9,895	67.0	67.3
Fabricated metal products not elsewhere classified, ordnance, and services	6,714	7,343	7,599	16,228	59.8	117.5
Industrial machinery and equipment	129,300	116,693	214,730	194,393	1,050.6	918.7
Farm and garden machinery	4,874	5,470	16,882	13,566	70.2	51.9
Construction, mining, and materials handling machinery	13,511	13,391	27,390	24,550	130.6	116.1
Computer and office equipment	84,594	70,785	106,680	79,279	430.2	298.5
Other	26,321	27,046	63,778	76,998	419.7	452.1
Engines and turbines	5,506	6,094	8,468	23,293	39.5	102.7
Metalworking machinery	2,103	2,094	7,356	6,325	48.0	40.5
Special industry machinery	3,798	3,955	6,727	10,012	41.3	55.9
General industry machinery and equipment	6,843	6,818	19,747	15,941	143.5	121.6
Refrigeration and service industry machinery	5,738	5,662	18,073	17,036	123.8	101.9
Industrial machinery and equipment not elsewhere classified	2,333	2,423	3,408	4,389	23.5	29.6
Electronic and other electric equipment	73,308	73,259	199,241	173,555	946.3	967.6
Household appliances	10,715	10,344	14,375	19,302	73.9	96.0
Household audio and video, and communications equipment	15,259	15,243	27,958	54,137	113.5	268.8
Electronic components and accessories	35,955	35,707	102,743	62,028	407.5	336.5
Electronic and other electric equipment, not elsewhere classified	11,378	11,964	54,165	38,088	351.3	266.3
Transportation equipment	206,848	189,477	424,137	357,502	1,615.9	1,318.3
Motor vehicles and equipment	202,518	184,653	309,635	257,698	957.3	768.9
Other	4,329	4,825	114,502	99,804	658.6	549.4
Other manufacturing	149,294	148,666	393,742	420,397	2,484.7	2,532.9
Tobacco products	15,481	15,481	8,921	24,688	32.3	49.6
Textile products and apparel	9,113	9,261	32,378	38,896	325.2	386.8
Textile mill products	3,029	3,138	16,740	16,860	159.3	159.2
Apparel and other textile products	6,084	6,123	15,638	22,037	166.0	227.6
Lumber, wood, furniture, and fixtures	9,023	9,058	36,633	38,720	225.0	230.2
Lumber and wood products	4,143	4,275	17,341	24,682	72.8	121.7
Furniture and fixtures	4,880	4,783	19,292	14,037	152.1	108.5
Paper and allied products	27,385	28,122	97,338	76,313	456.1	369.3
Pulp, paper, and board mills	8,511	8,051	36,612	32,566	152.4	147.8
Other paper and allied products	18,875	20,071	60,726	43,747	303.8	221.5

Table 6.—Sales by All Foreign Affiliates and Sales by, and Employment of, All U.S. Parents, by Industry of Enterprise and by Industry of Sales—Continued

	Affiliate data		U.S. parent data			
	Sales (millions of dollars)		Sales (millions of dollars)		Number of employees (thousands)	
	By industry of affiliate	By industry of sales	By industry of U.S. parent	By industry of sales	By industry of U.S. parent	By industry of sales [1]
Printing and publishing	7,194	6,877	55,362	55,929	391.1	374.3
Newspapers	245	240	17,061	16,341	122.4	134.0
Miscellaneous publishing	4,770	4,713	27,383	27,505	180.6	141.7
Commercial printing and services	2,179	1,925	10,918	12,082	88.2	98.6
Rubber products	12,132	11,530	26,033	22,706	152.1	135.2
Miscellaneous plastics products	14,648	13,580	16,653	28,252	104.8	173.8
Glass products	5,510	6,318	11,909	11,761	81.7	80.7
Stone, clay, and nonmetallic mineral products	5,535	5,308	15,551	14,058	85.4	75.5
Instruments and related products	35,708	34,785	79,578	81,588	536.1	503.4
Measuring, scientific, and optical instruments	5,124	5,885	36,562	33,284	274.8	237.3
Medical instruments and supplies and ophthalmic goods	12,213	13,133	21,758	32,382	145.7	204.3
Photographic equipment and supplies	18,371	15,767	21,258	15,922	115.5	61.7
Other	7,564	8,347	13,386	27,487	95.0	154.1
Leather and leather products	548	574	1,529	3,591	12.0	35.2
Miscellaneous manufacturing industries	7,016	7,773	11,857	23,896	83.0	118.9
Wholesale trade	310,932	323,800	263,717	329,332	491.2	577.0
Durable goods	194,748	202,491	152,346	173,879	247.7	316.4
Motor vehicles and equipment	25,220	39,769	18,138	24,511	35.4	47.1
Lumber and construction materials	1,132	1,079	5,222	7,889	11.5	9.3
Professional and commercial equipment and supplies	99,001	90,329	28,303	41,515	56.5	97.5
Metals and minerals	3,955	4,264	47,229	28,861	17.2	12.2
Electrical goods	31,704	33,023	34,562	34,429	69.9	62.6
Hardware, plumbing, and heating equipment and supplies	3,858	3,897	3,587	3,217	9.7	7.0
Machinery, equipment and supplies, not elsewhere classified	19,502	19,446	6,565	17,588	24.1	41.9
Durable goods, not elsewhere classified	10,375	10,683	8,741	15,871	23.3	38.7
Nondurable goods	116,184	121,309	111,371	155,453	243.5	260.7
Paper and paper products	3,741	4,970	12,806	17,029	33.6	34.4
Drugs, proprietaries, and sundries	26,072	24,077	30,684	23,194	55.3	31.8
Apparel, piece goods, and notions	7,615	7,916	8,441	10,002	28.8	29.8
Groceries and related products	16,579	18,691	30,176	38,669	79.9	92.0
Farm product raw materials	25,127	28,476	19,958	32,630	17.6	17.7
Nondurable goods, not elsewhere classified	37,051	37,179	9,307	33,928	28.2	54.9
Depository institutions	64,362	64,459	158,539	140,170	764.6	684.9
Banks	(D)	64,291	158,539	137,220	764.6	660.2
Savings institutions and credit unions	(D)	169	0	2,950	0	24.7
Finance (except depository institutions), insurance, and real estate	98,997	102,268	471,207	552,232	1,098.5	1,200.5
Finance, except depository institutions	49,750	53,109	105,810	171,335	273.3	448.2
Business franchising	647	1,747	0	4,123	0	14.3
Other	49,103	51,362	105,810	167,212	273.3	433.9
Insurance	47,646	47,720	362,007	372,755	811.1	727.0
Life insurance	17,359	16,811	126,299	124,420	221.9	187.8
Accident and health insurance	6,900	8,125	8,504	43,860	17.3	101.6
Other	23,387	22,784	227,204	204,475	571.9	437.5
Real estate	1,393	1,438	3,387	8,142	13.7	24.5
Holding companies	208	0	3	0	.4	.7
Services	86,230	109,610	171,243	252,146	2,116.8	2,658.7
Hotels and other lodging places	3,501	3,956	11,950	11,687	236.6	202.3
Business services	50,224	69,058	60,451	111,999	953.1	1,249.7
Advertising	6,497	6,434	4,735	7,591	30.4	37.7
Equipment rental (except automotive and computers)	2,939	3,590	1,720	6,998	12.5	31.6
Computer and data processing services	31,917	47,724	28,307	65,471	196.1	422.8
Computer processing and data preparation services	4,596	4,815	(D)	16,373	K	143.9
Information retrieval services	869	875	(D)	1,715	H	8.9
Computer related services, not elsewhere classified	26,452	42,034	22,954	47,383	141.7	269.9
Business services, not elsewhere classified	8,871	11,311	25,690	31,939	714.0	757.6
Services to buildings	234	304	5,948	4,717	118.7	105.4
Personnel supply services	4,048	4,081	9,270	9,038	360.7	361.3
Other	4,589	6,926	10,472	18,184	234.6	291.0
Automotive rental and leasing	2,596	2,590	6,751	8,067	65.6	64.8
Motion pictures, including television tape and film	7,844	7,770	32,482	23,619	169.9	91.6
Health services	554	639	24,604	30,364	315.1	361.4
Engineering, architectural, and surveying services	7,463	7,959	9,720	20,903	73.7	144.7
Management and public relations services	5,243	5,306	7,768	10,971	57.8	100.5
Other	8,806	12,332	17,517	34,537	245.0	443.8
Automotive parking, repair, and other services	121	295	(D)	2,878	H	43.4
Miscellaneous repair services	1,152	4,129	(D)	4,904	G	36.7
Amusement and recreation services	1,791	1,585	2,627	6,841	42.3	100.9
Legal services	234	248	2,178	2,295	11.3	12.4
Educational services	371	365	971	1,199	17.1	19.2
Accounting, auditing, and bookkeeping services	478	484	6,791	5,942	76.1	69.5
Research, development, and testing services	1,829	2,268	647	4,617	6.5	60.8
Other services provided on a commercial basis	2,831	2,959	3,896	5,860	87.7	100.9
Other industries	128,279	131,073	811,459	793,060	5,299.4	5,546.9
Agriculture, forestry, and fishing	2,827	3,060	4,433	7,526	32.1	48.4
Agricultural production—crops	1,695	1,781	3,236	4,638	17.5	19.7
Agricultural production—livestock	680	798	(D)	2,283	I	20.1
Agricultural services	(D)	91	(D)	280	I	6.7
Forestry	(D)	261	0	(D)	0	F
Fishing, hunting, and trapping]	130	130	0	(D)	0	G

Table 6.—Sales by All Foreign Affiliates and Sales by, and Employment of, All U.S. Parents, by Industry of Enterprise and by Industry of Sales—Continued

	Affiliate data		U.S. parent data			
	Sales (millions of dollars)		Sales (millions of dollars)		Number of employees (thousands)	
	By industry of affiliate	By industry of sales	By industry of U.S. parent	By industry of sales	By industry of U.S. parent	By industry of sales [1]
Mining	11,365	11,274	14,079	23,415	57.6	116.4
Metal mining	8,105	7,974	7,774	6,680	30.0	29.3
Iron ores	(D)	805	(D)	(D)	G	5.2
Copper, lead, zinc, gold, and silver ores	6,195	6,065	7,336	5,636	27.2	21.2
Other metallic ores	966	989	(D)	347	.3	1.9
Metal mining services	(D)	114	(D)	(D)	F	1.0
Nonmetallic minerals	3,260	3,300	6,305	16,735	27.6	87.1
Coal	2,501	2,607	3,735	11,055	16.4	59.1
Coal mining services	(D)	(D)	0	1	0	0
Nonmetallic minerals, except fuels	(D)	(D)	2,570	(D)	11.2	K
Nonmetallic minerals services, except fuels	4	4	0	(D)	0	G
Construction	8,881	8,987	33,676	28,924	179.6	157.5
Transportation	17,898	18,311	125,594	129,103	992.9	987.9
Railroads	412	374	28,046	20,518	161.3	120.2
Water transportation	3,836	3,926	6,348	9,155	29.2	41.7
Transportation by air	(D)	(D)	48,399	46,892	330.0	322.2
Pipelines, except petroleum and natural gas	472	472	0	0	0	0
Passenger transportation arrangement	(D)	(D)	5,335	10,586	24.7	24.9
Transportation and related services, not elsewhere classified	9,161	9,501	37,466	41,953	447.7	478.9
Communication	21,377	21,292	235,928	196,958	1,055.6	805.2
Telephone and telegraph communications	19,890	19,858	215,186	170,152	949.6	707.0
Other communications services	1,488	1,434	20,742	26,806	105.9	98.2
Electric, gas, and sanitary services	16,791	16,850	94,996	94,262	304.2	295.2
Retail trade	49,140	51,297	302,753	312,873	2,677.5	3,136.3
General merchandise stores	8,183	8,344	173,002	149,805	1,362.2	1,312.1
Food stores	11,602	11,555	41,191	42,442	318.2	326.6
Apparel and accessory stores	1,975	2,074	32,854	35,794	415.1	417.3
Eating and drinking places	11,170	10,302	13,323	28,325	269.6	702.9
Retail trade, not elsewhere classified	16,210	19,022	42,384	56,507	312.4	377.3
Unspecified	**0**	**2,951**	**0**	**36,909**	**0**	**407.1**

(D) Suppressed to avoid disclosure of data of individual companies.

1. Bank parents, unlike nonbank parents, were not required to disaggregate their employment by industry of sales. The distribution of employment by industry of sales for bank parents was, therefore, estimated by multiplying each parent's total employment by the percentage of sales that were in each industry.

NOTE.—Size ranges are given in employment cells that are suppressed. The size ranges are A—1 to 499; F—500 to 999; G—1,000 to 2,499; H—2,500 to 4,999; I-5,000 to 9,999; J—10,000 to 24,999; K—25,000 to 49,999; L—50,000 to 99,999; M—100,000 or more.

To present financial and operating data in the same detail for all nonbank affiliates, BEA estimated the items that appeared only on the long form for the affiliates that were reported on the short form. Estimates were also made for some affiliates that failed to report on the benchmark survey but for which data could be obtained from other direct investment surveys.

The long form (BE-10B(LF))—which was filed by U.S. parents for nonbank foreign affiliates with total assets, sales, or net income (or loss) greater than $50 million—collected detailed data. The most detail was collected for majority-owned nonbank affiliates. The short form (BE-10B(SF))—which was filed by nonbank U.S. parents for nonbank foreign affiliates with total assets, sales, or net income (or losses) of $50 million or less and by bank parents for their nonbank affiliates regardless of size—collected most balance of payments items but only selected financial and operating data items. For a given short-form affiliate, long-form items were generally estimated on the basis of relationships among data items for the most comparable panel of long-form affiliates that could be constructed; specifically, the panel comprised affiliates that had total assets of between $50 million and $250 million and that were in the same industry group as the affiliate whose data were being estimated.

A total of 13,557 nonbank affiliates of nonbank parents filed short forms. Although these affiliates accounted for 60.7 percent of all nonbank affiliates of nonbank parents, they accounted for only a modest portion of the universe of nonbank affiliates of nonbank parents in terms of value—8.0 percent of total assets, 12.0 percent of sales, and 24.0 percent of employment.

BEA also made estimates of the data for some nonbank affiliates that did not file a benchmark survey report even though they met the criteria for filing. For the 567 affiliates covered by these estimates, BEA had a report in another direct investment survey that served as a basis for estimation. These affiliates, most of which were small, accounted for only a minor portion of the nonbank universe in terms of value—1.7 percent of total assets, 1.6 percent of sales, and 3.2 percent of employment. The estimation of data for these affiliates ensured that the 1994 data were as complete as possible.

All data reported for U.S. parents and foreign affiliates were required to pass a number of computerized edit checks. Where possible, the data for a parent or an affiliate were reviewed for

their consistency with related data for the parent or affiliate from other parts of the report form, with data provided in related report forms, with comparable data reported by other parents or affiliates, and with comparable data from outside sources. As a result of this edit and review process, a number of changes to the reported data were made, often after consultation with survey respondents. In some cases, usually involving small parents and affiliates, estimates based on industry averages or on other information were substituted for missing or erroneously reported data.

For some data items—such as those pertaining to trade by product and by country of destination and origin—survey respondents had difficulty in supplying the required information because the data were not easily accessible or were unavailable from their standard accounting records. In these cases, respondents often made estimates, the quality of which is difficult to assess.

Number of U.S. Parents and Foreign Affiliates

Table 7 shows the number of parents and affiliates covered by the 1994 benchmark survey. Table II.A2 shows the number of nonbank foreign affiliates by country, and table III.A2 shows the number of nonbank U.S. parents and nonbank foreign affiliates by industry. The counts of nonbank parents and affiliates are comparable with the counts shown in the previous annual survey publications.

The counts of parents and affiliates should be used cautiously because with the exception of those shown in table 2, they exclude the numerous very small affiliates (and parents of only very small affiliates) that were exempt from filing a benchmark survey report. In addition, some parents and affiliates that were required to file a report did not do so. Because of limited resources, BEA's efforts to ensure compliance with

Table 7.—Selected Data for Foreign Affiliates and Their U.S. Parents, by Group of Affiliate or Parent

Panel A.—Affiliate Data

	All affiliates			Nonbank affiliates									Bank affiliates		
				Of all parents			Of nonbank parents			Of bank parents					
	Of all parents	Of nonbank parents	Of bank parents	Total	Majority-owned nonbank affiliates [1]	Other nonbank affiliates [2]	Total	Majority-owned nonbank affiliates [1]	Other nonbank affiliates [2]	Total	Majority-owned nonbank affiliates [1]	Other nonbank affiliates [2]	Of all parents	Of nonbank parents	Of bank parents
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Number of affiliates	22,332	21,487	845	21,761	19,196	2,565	21,436	18,929	2,507	325	267	58	571	51	520
Total assets (millions of dollars)	3,380,983	2,412,982	968,001	2,485,555	2,118,657	366,898	2,376,902	2,022,677	354,225	108,653	95,980	12,673	895,428	36,080	859,348
Sales (millions of dollars)	1,830,744	1,759,896	70,848	1,766,382	1,442,009	324,373	1,757,388	1,435,901	321,487	8,994	6,108	2,886	64,362	2,508	61,854
Net income (millions of dollars)	101,792	94,348	7,444	95,760	82,273	13,487	93,986	81,095	12,891	1,774	1,178	596	6,032	362	5,670
Number of employees (thousands)	7,240.5	7,112.6	128.0	7,128.4	5,717.8	1,410.6	7,104.6	5,707.1	1,397.5	23.8	10.7	13.1	112.2	8.0	104.2
Compensation of employees (millions of dollars)	230,629	224,722	5,906	225,157	184,245	40,912	224,275	183,591	40,684	882	654	228	5,471	447	5,024
U.S. direct investment position abroad on a historical-cost basis (millions of dollars)	606,393	571,799	34,594	580,508	546,530	33,978	569,317	536,298	33,019	11,191	10,232	959	25,885	2,482	23,403
Direct investment income (millions of dollars)	67,596	62,687	4,909	63,546	61,416	2,130	62,422	60,449	1,973	1,124	967	157	4,050	265	3,785

Panel B.—U.S. Parent Data

	Parents of all affiliates			Parents of nonbank affiliates									Parents of bank affiliates		
				All parents			Nonbank parents			Bank parents					
	All parents	Nonbank parents	Bank parents	Total [3]	Of majority-owned nonbank affiliates [2 4]	Of other nonbank affiliates [1 4]	Total [3]	Of majority-owned nonbank affiliates [1 4]	Of other nonbank affiliates [2 4]	Total [3]	Of majority-owned nonbank affiliates [1 4]	Of other nonbank affiliates [2 4]	All parents [3]	Nonbank parents [3]	Bank parents [3]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Number of U.S. parents	2,727	2,667	60	2,690	2,549	714	2,667	2,529	699	23	20	15	74	16	58
Total assets (millions of dollars)	8,636,571	6,718,003	1,918,568	7,952,491	7,770,715	5,308,184	6,718,003	6,622,513	4,254,700	1,234,488	1,148,202	1,053,484	2,657,477	754,510	1,902,967
Sales (millions of dollars)	4,148,552	3,990,013	158,539	4,096,101	3,936,312	2,678,509	3,990,013	3,837,699	2,589,660	106,088	98,613	88,849	298,275	141,510	157,275
Net income (millions of dollars)	214,352	191,154	23,199	206,063	201,904	145,811	191,154	188,247	133,368	14,909	13,656	12,443	31,612	8,580	23,032
Number of employees (thousands)	19,330.0	18,565.4	764.6	19,026.4	18,073.3	11,398.1	18,565.4	17,647.4	11,045.0	460.9	425.9	353.1	1,121.1	363.7	757.3
Compensation of employees (millions of dollars)	840,608	805,372	35,235	828,461	811,496	525,262	805,372	790,074	506,714	23,088	21,422	18,548	57,768	22,838	34,930

1. A majority-owned nonbank affiliate is a nonbank affiliate in which the combined direct and indirect ownership interest of all U.S. parents exceeds 50 percent.

2. Other nonbank affiliates are nonbank affiliates that are not majority-owned nonbank affiliates, as described in footnote 1.

3. Because some parents have both nonbank and bank affiliates, the sum of columns 4 and 13, columns 7 and 14, and columns 10 and 15 contain duplication and do not equal the totals in columns 1, 2, and 3, repectively, in panel B.

4. Because some parents have both majority- and minority-owned affiliates, the sum of columns 5 and 6, columns 8 and 9, and columns 11 and 12 contain duplication and do not equal the totals in columns 4, 7, and 10, respectively, in panel B.

reporting requirements focused mainly on large parents and affiliates. As a result, some of the parents of small affiliates that were not aware of the reporting requirements and that were not on BEA's mailing list may not have filed reports. The omission of these parents and their affiliates from the benchmark survey results probably has not significantly affected the aggregate value of the various data items collected, but it could have caused an unknown, but possibly significant, understatement of the number of parents or affiliates.

Even an exact count of parents or affiliates would be difficult to interpret because each report covers a consolidated business enterprise. The number of consolidated business enterprises varies according to the degree of consolidation used and the differences in the organizational structure of the companies.

Financial and Operating Data for Foreign Affiliates and U.S. Parents

Financial and operating data focus on the overall operations of U.S. parents and their affiliates. Among the items covered by these data are the following: Balance sheets and income statements; gross product; sales of goods and services; external financial position; taxes; property, plant, and equipment; employment and compensation of employees; U.S. trade in goods; and research and development expenditures. Only a few of these items were obtained for bank parents and affiliates; consequently, most of the tables that present financial and operating data cover only nonbank parents and affiliates.

The financial and operating data for foreign affiliates are not adjusted for the ownership share of the U.S. parents. Thus, for example, the employment data include all employees of each affiliate, including affiliates in which the U.S. parent's ownership share is less than 100 percent. To help address issues for which control is relevant, many tables cover only majority-owned foreign affiliates.

Most of the concepts and definitions used in reporting the financial and operating data can be found on the BE-10 forms or in the *Instruction Booklet* to the forms, all of which are reproduced in the appendix. The following discussion focuses on the concepts, definitions, and statistical issues that require further explanation or that are not covered in either the forms or the *Instruction Booklet.*

Gross product

Gross product measures the contributions of foreign affiliates to the gross domestic product (GDP) of foreign countries and the contribution of U.S. parents to U.S. GDP. Often referred to as "value added," gross product can be measured as gross output (sales or receipts and other operating income plus inventory change) minus intermediate inputs (purchased goods and services). Alternatively, it can be measured as the sum of the costs incurred (except for intermediate inputs) and the profits earned in production. The estimates presented in this publication for U.S. parents and majority-owned foreign affiliates were calculated as the sum of costs and profits.

Estimates of gross product rather than sales or other measures are generally preferred in assessing the impact of parents or affiliates on the entire host economy as well as on individual industries. Using gross product permits a more focused analysis of the economic impact of parents and affiliates because it measures only the parents' and affiliates' own production, whereas sales do not distinguish between internal production and production originating elsewhere. In addition, gross product measures the value added to the economy during a specific period. In contrast, some sales in a given period may represent production from earlier periods.

The measure of profits from current production used to compute gross product is profit-type return. Unlike the net income item in the income statement, profit-type return measures profits before income taxes, and it excludes nonoperating items (such as special charges and capital gains and losses) and income from equity investments. Tables included in this publication show profit-type return of majority-owned foreign affiliates by detailed country and industry.

External financial position

The 1994 benchmark survey was the first BEA survey to collect data on the external financial position of U.S. parent companies. These new data for parents are similar to the data collected for majority-owned foreign affiliates in the 1994 and previous benchmark surveys and in BEA's annual surveys of U.S. direct investment abroad. For parents, the benchmark survey obtained a breakdown of most financial-asset and liability positions with affiliated and unaffiliated persons and with U.S. or foreign persons. For affiliates, a similar breakdown was collected for current li-

abilities and long-term debt, owners' equity, and receivables and financial investments.

These new data for U.S. parents provide a more complete picture of the parents' international commercial and financial activities than had been available. In past benchmark surveys, detail on U.S. parents' transactions with unaffiliated foreigners had been limited to trade in goods, sales of goods and services, and receipts and payments of fees and royalties. The new data fill a gap by providing information on parents' financial relationships—asset and liability positions—with unaffiliated foreigners. They also permit better integration of the data for U.S. parents in the international accounts with the data on financial and commercial claims and liabilities of all U.S. companies collected by the Treasury Department.

Sales of goods and services

For U.S. parents and majority-owned foreign affiliates, the 1994 benchmark survey collected data on sales (or gross operating revenues) that were disaggregated into goods, services, and investment income and by type of customer—by affiliated and unaffiliated parties—and by destination—sales to the United States, local sales, and sales to other foreign countries.[14]

As a general rule, sales of goods are defined as sales generated by activities that are characteristic of establishments in the following major industries: Agriculture (except agricultural services), forestry, and fishing; mining (except mining services); petroleum (except petroleum services); construction; manufacturing; and wholesale and retail trade. However, a parent or an affiliate that is not classified in one of these industries may have sales of goods.

As a general rule, sales of services are defined as sales generated by activities that are characteristic of establishments in the following industries: The "services" division of the Standard Industrial Classification (and the International Surveys Industry Classification) system; petroleum services; finance, insurance, and real estate; agricultural services; mining services; transportation; communication; and public utilities. However, a parent or an affiliate that is not classified in one of these industries may have sales of services.

One exception to these rules occurs when goods are among the products of services industries or services are among the products of goods industries. For example, sales of mass-produced prepackaged computer software are recorded as sales of goods even if the software is sold directly by a software producer (classified in a services industry). Similarly, sales of structures are sales of goods regardless of whether they are sold by a company in a goods industry (such as a construction firm) or by a company in a services industry (such as a real estate firm).

Another exception is that finance and insurance companies that include investment income in total sales (or gross operating revenues) reported such income as investment income rather than as sales of services. In most other industries, companies generally consider investment income an incidental revenue source and include it in the income statement in a separate "other income" category rather than in sales.

When a sale consisted of both goods and services and the two components could not be unbundled, because for example, the goods and services were not separately billed, the total sale was classified as a good or as a service on the basis of whether the good or the service accounted for the most value.

Employment and compensation of employees

In the benchmark survey, data on employment and compensation of employees were collected for U.S. parents and foreign affiliates. For U.S. parents and majority-owned foreign affiliates, data were also collected on the number of employees engaged in research and development activities and on the components of compensation of employees—wages and salaries and employee benefits. For majority-owned foreign affiliates in manufacturing, data were also collected on the number of production workers and on the compensation of, and hours worked by, those workers.

Survey respondents were asked to report employment as the number of full-time and part-time employees on the payroll at the end of fiscal year 1994. However, a count taken during the year was accepted if it was a reasonable proxy for the end-of-year number. In addition, if employment at the end of the year was unusually high or low because of temporary factors, such as seasonal variations or a strike, a number reflecting normal operations was requested.

Employment by U.S. parents is classified both by industry of parent and by industry of sales. The classification by industry of sales is based on information supplied by each U.S. parent on em-

14. Sales are defined as gross sales (or, for holding companies, gross operating revenues) minus returns, allowances, and discounts. They are net of sales taxes and consumption taxes levied directly on consumers, value-added taxes, and excise taxes levied on manufacturers, wholesalers, and retailers.

ployment in the individual three-digit industries in which it had sales.

Employment by foreign affiliates is classified both by industry of affiliate and by industry of U.S. parent. It is not classified by industry of sales because the necessary data were not collected. (Earlier surveys had indicated that most affiliates had employment in only one three-digit industry.)

Worker compensation rates were not directly collected in the benchmark survey, but the data needed to derive hourly compensation of production workers of majority-owned foreign affiliates in manufacturing were collected. Such data were collected only for production workers because data on hours worked by nonproduction workers are generally not maintained by survey respondents and because data on aggregate hourly compensation and wage rates for the United States and foreign countries that might be comparable with the benchmark survey data are limited to data for production workers.

Data that could be used to compute compensation per employee and wages and salaries per employee of U.S. parents and foreign affiliates also were collected. However, the computed rates may not accurately reflect the compensation rates normally paid by parents and affiliates (and, thus, are not shown in this publication). The computed rates may be distorted by the inclusion of part-time employment, because a part-time employee is counted the same as a full-time employee, or they may be distorted by data that cover only part of the year—for example, data for a parent or affiliate that was newly established during the year.

U.S. trade in goods

In the benchmark survey, data were collected on several aspects of the U.S. trade in goods of U.S. parents and foreign affiliates. For U.S. parents, data were collected by country of destination or origin, by affiliation (that is, whether or not the trade was with affiliated parties), and by product. For all foreign affiliates, data were collected by affiliation. For majority-owned foreign affiliates, data were also collected by product and, for exports, by intended use.

The concepts and definitions underlying the data collected on trade in goods are nearly identical to those used for the data on total U.S. trade in goods compiled by the Census Bureau. However, because of certain reporting problems, the 1994 benchmark survey data are not completely comparable with the Census Bureau trade data. In the benchmark survey, U.S. trade in goods data were requested on a "shipped" basis—that is, on the basis of when, where, and to (or by) whom the goods were shipped—in order for them to be comparable with the data on total U.S. trade. However, most survey respondents keep their accounting records on a "charged" basis—that is, on the basis of when, where, and to (or by) whom the goods were charged. The two bases are usually the same, but differences between them can be substantial.[15]

On the basis of its review, BEA believes most data were reported on a shipped basis rather than on a charged basis. However, some survey respondents had difficulty obtaining data on a shipped basis, which usually required using shipping department invoices rather than accounting records. If BEA determined that the data were reported on a charged basis and that these data were likely to differ materially from data reported on a shipped basis, it required revised reports to be filed. However, some cases of erroneous reporting were probably not identified.

Additional differences between the BEA trade data and those of the Census Bureau may have resulted simply because the data come from two different sources: The BEA data are based on company records, whereas those of the Census Bureau are compiled from export and import documents filed by the shipper with the U.S. Customs Service on individual transactions. The timing, valuation, origin or destination, shipper, and product involved in a given export or import transaction may be recorded differently on company records than on customs export and import documents.

In the 1994 benchmark survey, exports and imports of U.S. parents and majority-owned foreign affiliates are disaggregated into 12 product categories on the basis of the *Standard International Trade Classification, Revision 2* (United Nations Statistical Papers, Series M, No. 34, New York: United Nations, 1975). (See pages 21–24 in the *Guide to Industry and Foreign Trade Classifications for International Surveys* in the appendix for a description of the categories used.) U.S. exports of goods shipped to majority-owned foreign affiliates were also disaggregated by intended use into three categories: Capital equipment, goods

15. For example, if a U.S. parent buys goods from an affiliate in country A and sells them to an affiliate in country B and if the goods are shipped directly from country A to country B, the parent's accounting records would show a purchase from country A and a sale to country B. If the parent's trade data were reported on a charged basis, the purchase and sale would have appeared as a U.S. import and a U.S. export, respectively; however, the goods never entered or left the United States, and on a shipped basis, they are not included in either U.S. imports or U.S. exports.

for further manufacture, and goods for resale without further manufacture.

Total trade of a given U.S. parent with all of its foreign affiliates combined was reported on the parent survey form (BE-10A), and trade of a foreign affiliate with its U.S. parent was reported on the affiliate survey form (BE-10B). However, the total trade of a U.S. parent with all of its affiliates combined may not equal the sum of the trade with the U.S. parent that was reported for the affiliates, because of differences in timing and valuation and because the parent's survey form may include data for affiliates that are exempt from being reported on the affiliates' survey forms.

Research and development

The 1994 benchmark survey collected data on two technology-related items—research and development (R&D) expenditures and the number of employees engaged in R&D-related activities—for U.S. parents and majority-owned foreign affiliates. R&D includes basic and applied research in science and engineering and design and development of prototypes and processes.

The data on R&D expenditures were collected on two bases: R&D that is performed by the parent or affiliate (whether the R&D was for its own use or for use by others) and R&D that is funded by the parent or affiliate (whether the R&D was performed internally or by others). R&D on the performance basis is consistent with the data on R&D performed by all U.S. companies that are compiled by the National Science Foundation. R&D on the funding basis is consistent with guidelines of the Financial Accounting Standards Board for accounting for the costs of R&D. Both R&D measures provide some indication of the production or use of technology by parents and affiliates; however, the connection between R&D activity and technology is imprecise.

Direct Investment Position and Balance of Payments Data

Direct investment position and direct investment balance of payments data measure the value of U.S. parents' investment positions in, and the value of their transactions with, their foreign affiliates. In contrast, the financial and operating data of parents and affiliates, discussed earlier, provide measures of the overall operations of parents and affiliates, including their transactions and investment positions with persons outside of the U.S. multinational company. For example, the U.S. direct investment position in a foreign affiliate is equal to its U.S. parents' equity in, and net outstanding loans to, the affiliate; in contrast, a foreign affiliate's total assets are equal to the sum of (1) the total owners' equity in the affiliate that is held by its U.S. parents and by all other persons and (2) the total liabilities owed by the affiliate to its U.S. parents and to all other persons.[16]

For U.S. direct investment abroad, the following major items appear in the U.S. international transactions accounts:

- Direct investment capital outflows,
- Direct investment income,
- Direct investment royalties and license fees, and
- Other direct investment services.

Two adjustments are made to the data before they are entered into the U.S. international accounts and the national income and product accounts, but these adjustments are made only at the global level; the data required to make them for countries and industries are not available. The data from the benchmark survey are adjusted from a fiscal year basis to a calendar year basis.

In addition, income and capital outflows are adjusted to ensure that depreciation charges reflect current-period prices and to more closely align income earned in a given period with charges against income in the same period, as required by economic accounting principles. The adjustment is accomplished in a three-step process. First, a capital consumption adjustment is made to convert depreciation charges from a historical-cost basis to a current- or replacement-cost basis. Second, earnings are raised by the amount of the charges for depletion of natural resources, because these charges are not treated as production costs in the national income and product accounts. Third, expenses for mineral exploration and development are reallocated across periods to ensure that they are written off over their economic lives rather than all at once.

The adjusted data for 1994 will be extrapolated forward to derive universe estimates for calendar years after 1994 on the basis of sample data collected in BEA's quarterly surveys for those years. BEA is evaluating the need to revise

16. For example, suppose that an affiliate is owned 80 percent by its U.S. parent and that the affiliate has total owners' equity of $50 million and total liabilities of $100 million, of which $20 million is owed to the parent. In this case, the affiliate's total assets would be $150 million (total owners' equity of $50 million plus total liabilities of $100 million), and the parents' position in the affiliate would be $60 million (80 percent of the $50 million of owners' equity plus the $20 million of intercompany debt).

previously published data for 1990–93 to incorporate information obtained in the 1994 benchmark survey.

Two changes, discussed in more detail below, have been introduced to make BEA's data more consistent with the international standards recommended in the International Monetary Fund's *Balance of Payments Manual* and in the United Nations System of National Accounts. First, intercompany debt transactions and positions and associated interest transactions with affiliates that are financial intermediaries other than depository institutions are excluded from direct investment in accordance with the methodology used for depository institutions (see the discussion in the section "U.S. direct investment position abroad"). Second, data on intercompany service charges are disaggregated by type of service (see the discussion in the section "Other direct investment services").

U.S. direct investment position abroad

The U.S. direct investment position abroad at historical cost is equal to the net book value of U.S. parents' equity in, and net outstanding loans to, their foreign affiliates. The position may be viewed as the U.S. parents' contributions to the total assets of their foreign affiliates or as the financing provided in the form of equity or debt by U.S. parents to their foreign affiliates. The data are derived from the accounting records of the foreign affiliates at yearend.

The direct investment position data in this publication are valued at historical cost and are not adjusted to current value. Thus, they largely reflect prices at the time of investment rather than prices of the current period. Because historical cost is the basis used for valuation in company accounting records in the United States, it is the only basis on which companies can report data in BEA's direct investment surveys. It is also the only basis on which detailed estimates of the position are available by country, by industry, and by account. However, BEA does provide aggregate estimates of the position valued on two current-period-price bases—current cost and market value.[17] The direct investment position at current cost revalues that portion of the position that represents U.S. parents claims on the tangible assets of foreign affiliates (such as plant, equipment, and inventories), using price indexes appropriate to each of a few broad asset classes. The direct investment position at market value revalues both the tangible assets and the intangible assets on which U.S. parents have claims, using aggregate stock price indexes for foreign countries.

U.S. parents' equity in incorporated foreign affiliates can be broken down into U.S. parents' holdings of capital stock in, and other capital contributions to, their affiliates and U.S. parents' equity in the retained earnings of their affiliates. Capital stock includes all stock of affiliates, whether the stock is common or preferred or is voting or nonvoting. Other capital contributions by U.S. parents, also referred to as the "U.S. parents' equity in additional paid-in capital," consist of invested or contributed capital that is not included in capital stock; these contributions include the amount paid for stock in excess of its par or stated value, the capitalization of intercompany accounts (conversions of debt to equity) that do not result in the issuance of capital stock, and donations. U.S. parents' equity in retained earnings is the U.S. parents' shares of the cumulative undistributed earnings of their incorporated foreign affiliates.

Although the owners' equity of some unincorporated affiliates could not be disaggregated by type, the data on U.S. parents' equity in affiliates by type cover both incorporated and unincorporated affiliates. For unincorporated affiliates for which no breakdown of owners' equity by type was available, the parents' total equity was included in capital stock. The U.S. parents' share in total owners' equity (not broken down by type) is shown for incorporated affiliates and for unincorporated affiliates in addenda to the tables.

U.S. parents' net outstanding loans to their foreign affiliates, also referred to as "U.S. parents' net intercompany debt receivables from foreign affiliates," consist of trade accounts and trade notes payable, other current liabilities, and long-term debt that is owed by the affiliates to their U.S. parents and that is net of similar items due to the affiliates from their U.S. parents.

Intercompany debt includes the value of capital leases and of operating leases of more than 1 year between U.S. parents and their foreign affiliates. The value of property leased to a foreign affiliate by its U.S. parent is included in affiliates' payables, and the value of property leased by a

17. For the estimates of the position at current cost and at market value for U.S. direct investment abroad (and for foreign direct investment in the United States), see Russell B. Scholl, "The International Investment Position of the United States in 1996," SURVEY OF CURRENT BUSINESS 77 (July 1997): 24–33. For a discussion of concepts and estimating procedures, see J. Steven Landefeld and Ann M. Lawson, "Valuation of the U.S. Net International Investment Position," Survey 71 (May 1991): 40–49.

foreign affiliate to its U.S. parent is included in affiliates' receivables.[18]

For affiliates that are depository institutions or other financial intermediaries, certain types of funding received from, or provided to, their parents are excluded from direct investment in accordance with international guidelines. For affiliates that are depository institutions, the direct investment position is defined to include only their U.S. parents' permanent equity and debt investment in them; similarly, the direct investment flows that enter the U.S. international transactions accounts for these affiliates include only the transactions related to such permanent investment. All other transactions and positions—mainly claims and liabilities arising from the parents' and affiliates' normal banking business, which are reported to the U.S. Treasury Department rather than to BEA, are excluded from the direct investment accounts, but they are included with other banking claims and liabilities in the portfolio investment accounts.

Beginning with the 1994 benchmark survey, a similar treatment has been adopted for affiliates that were financial intermediaries other than depository institutions: The direct investment position in, and capital and income flows with, these affiliates are defined to include only the U.S. parents' permanent investment in them. Other U.S.-parent positions in, and flows with, these affiliates—positions and flows associated with the affiliates intermediation activity—are included in the portfolio investment accounts. This change was made in order to make BEA's data more consistent with the international standards recommended in the International Monetary Fund's *Balance of Payments Manual*.[19]

The industrial classification system used in the 1994 benchmark survey separately classified depository institutions, but it did not provide a separate classification for other financial intermediaries. Instead, financial intermediaries and other nonbank financial affiliates are classified in the "other finance" industry (international surveys industry code 612 in the *Guide*). A review of the affiliates in that industry identified three groups of affiliates that have characteristics of financial intermediaries: (1) Those located in the Netherlands Antilles, (2) those whose parents were depository institutions, and (3) those whose parents were securities dealers.[20]

The Netherlands Antilles affiliates were identified as financial intermediaries because according to international guidelines, financial intermediaries include affiliates set up abroad to raise and channel funds to their U.S. parent companies. Such affiliates are part of a broader category referred to as *special purpose entities* (SPE's), which "are enterprises that engage primarily in international transactions and do little or no local business."[21] Until mid-1984, U.S. parents were prompted to borrow indirectly through nonbank financial affiliates in the Netherlands Antilles rather than directly from foreign capital markets, because the interest payments on their borrowings from affiliates were exempt from U.S. withholding taxes under a tax treaty between the United States and the Netherlands Antilles. The repeal of the withholding tax in 1984 caused most borrowing from these affiliates to cease and the repayment of previous borrowings to increase, but some U.S. parents continue to borrow indirectly through their nonbank financial affiliates in the Netherlands Antilles.

As a practical matter, permanent investment in affiliates that are financial intermediaries other than depository institutions has been defined to be equivalent to the parents' equity investment in the affiliates. Thus, intercompany debt positions in these affiliates are excluded from the direct investment position; changes in these positions are excluded from direct investment capital flows; and interest payments and receipts are excluded from direct investment income. This treatment was necessary because data were not collected separately on the parents' permanent investment in these affiliates.[22]

A U.S. parent and its foreign affiliate may have a two-way financial relationship—that is, each may have debt and equity investment in the other. Thus, a U.S. parent may have investment in a foreign affiliate that, in turn, has investment in

18. Under a capital lease, like an installment sale, it is anticipated that title to the leased property will be transferred to the lessee at the termination of the lease. The term of an operating lease is significantly shorter than the expected useful life of the tangible property being leased, and the leased property is usually returned to the lessor at the termination of the lease. For capital leases, the value of the leased property is calculated according to U.S. generally accepted accounting principles (GAAP); under GAAP, the lessee records either the present value of the future lease payments or the fair market value of the property, whichever is lower, and the lessor records the sum of all future lease receipts. For operating leases of more than 1 year, the value is the original cost of the leased property less accumulated depreciation.

19. This new treatment will be incorporated in the U.S. international transactions accounts beginning with the estimates to appear in the July 1998 issue of the SURVEY OF CURRENT BUSINESS.

20. Outside sources were used to determine which U.S. parents were securities dealers because the industrial classification system used in the 1994 benchmark survey did not provide a separate classification for them.

21. International Monetary Fund (IMF), *Report on the Measurement of International Capital Flows* (Washington, DC: IMF, September 1992): 28.

22. The data collected for depository institutions suggest that the distinction between permanent investment and other investments is largely based on the form of the investment–equity or debt; equity was generally reported as permanent investment, and intercompany debt was generally excluded from permanent investment.

the U.S. parent as a result of the affiliate's lending funds to, or acquiring voting securities or other equity interest in, the U.S. parent. In the intercompany debt portion of the position, affiliates' receivables from their U.S. parents (reverse debt investment) are netted against affiliates' payables to their U.S. parents.[23] Reverse equity investment by foreign affiliates in their U.S. parents is included in foreign portfolio investment in the United States if the affiliate's ownership is less than 10 percent, or it is included in the foreign direct investment position in the United States if the affiliate's ownership of its U.S. parent is 10 percent or more.

The direct investment position at the end of the year is equal to the position at the end of the previous year plus the change in the position during the year. The change during the year is the sum of direct investment capital flows (see the next section) and valuation adjustments. Valuation adjustments are broadly defined to include all changes in the position other than capital flows. They primarily reflect differences between transactions values, which are used to record direct investment capital flows, and the book values on foreign affiliates' accounting records, which are used to record the position and, therefore, changes in the position. For example, valuation adjustments include differences between the sale value and book value of foreign affiliates that are sold by U.S. parents. Valuation adjustments also include capital gains and losses and currency-translation adjustments. Currency-translation adjustments to the position are made to reflect changes in the exchange rates that are used to translate foreign affiliates' foreign-currency-denominated assets and liabilities into dollars, according to the guidelines in FASB 52 (see the section "Currency translation").

Direct investment capital outflows

Direct investment capital outflows consist of equity capital outflows, reinvested earnings, and intercompany debt outflows. This section first defines these components and then discusses the coverage, measurement, and presentation of direct investment capital outflows.

Equity capital outflows.—Equity capital outflows are net increases in U.S. parents' equity in their foreign affiliates; equity capital inflows (decreases in equity) are netted against equity capital outflows (increases in equity) to derive the net outflow. Equity capital outflows exclude changes in equity that result from the reinvestment of earnings, which are recorded as a separate component of direct investment capital outflows.

Equity capital outflows to foreign affiliates result from U.S. parents' establishment of new foreign affiliates, from their initial acquisitions of 10-percent-or-more ownership interests in existing foreign business enterprises, from their acquisitions of additional ownership interests in existing foreign affiliates, and from capital contributions to their foreign affiliates. Equity capital inflows result from liquidations of foreign affiliates, from partial or total sales of ownership interests in foreign affiliates, and from the return of capital contributions. Equity capital inflows also include liquidating dividends, which are a return of capital to U.S. parents.

Equity capital outflows are recorded at transactions values on the basis of the accounting records of the U.S. parents rather than on the basis of the accounting records of the affiliates. The data are based on the accounting records of the parent partly because some transactions—such as when a U.S. parent purchases or sells capital stock from or to an unaffiliated third party—are not recorded in the accounting records of the foreign affiliates. In addition, the transactions values that are required for balance of payments accounting are sometimes available only from the parent's accounting records; for example, the equity capital of a foreign affiliates that is newly acquired or sold by its U.S. parent is carried at book value in the accounting records of the foreign affiliate, but it is carried at transaction value—including any premium or discount—in the accounting records of the U.S. parent.

Reinvested earnings.—Reinvested earnings of foreign affiliates are earnings less distributed earnings. Earnings are U.S. parents' shares in the net income of their foreign affiliates after the provision for foreign income taxes. Earnings are from the accounting records of the foreign affiliate. A U.S. parent's share in net income is based on its directly held equity interest in the foreign affiliate. The earnings and reinvested earnings estimates in this publication are not adjusted to reflect current-period prices, because the source data needed to adjust the estimates by detailed country and industry are not available.

Earnings are a part of the direct investment income account because they are income to the U.S.

23. In the extremely rare case in which a foreign affiliate and its U.S. parent own 10 percent or more of each other, a foreign affiliate's debt investment in its U.S. parent is not netted against the parents' debt investment in it. In order to avoid double-counting, the U.S. parents' debt investment in the affiliate is included in the U.S. direct investment position abroad, and the affiliate's debt investment in the parent is included in the foreign direct investment position in the United States.

parent, whether they are reinvested in the affiliate or remitted to the parent. However, because reinvested earnings are not actually transferred to the U.S. parent, they increase the parent's investment in its affiliate. Thus, an entry equal to the value of reinvested earnings is made in the direct investment income account, and a similar entry, but with the opposite sign, is made in the direct investment capital account.

For incorporated foreign affiliates, distributed earnings are dividends on common and preferred stock of the affiliates that are held by their U.S. parents before the deduction of foreign withholding taxes. Distributions can be paid out of current or past earnings. Dividends exclude stock and liquidating dividends. Stock dividends are excluded because they are a capitalization of retained earnings—a substitution of one type of equity (capital stock) for another (retained earnings); they reduce the amount of retained earnings available for distribution but leave total owners' equity unchanged. Thus, stock dividends do not give rise to entries in the international transactions accounts.[24] Liquidating dividends are excluded because they are a return of capital rather than a remittance of earnings (liquidating dividends are included instead as inflows in the direct investment equity capital account). For unincorporated affiliates, distributed earnings are earnings distributed to U.S. parents out of current or past earnings.

Distributed earnings are based on the accounting records of U.S. parents. Because they are on an accrual basis, they are reported as of the date that they are either received from foreign affiliates or entered into intercompany accounts with foreign affiliates. Thus, for example, a dividend declared by a foreign affiliate, but not remitted because of exchange controls, would be recorded in the direct investment capital account as a distributed earnings inflow when the dividend is entered into intercompany accounts; an offsetting intercompany debt outflow would be recorded at the same time. Distributed earnings are included whether they are paid in cash, through debt creation, or in kind.

Intercompany debt outflows.—Intercompany debt outflows consist of the increase in U.S. parents' net intercompany debt receivables from their foreign affiliates during the year, as they are recorded in the financial records of the U.S. parents.[25] The increase for a given period is derived by subtracting the net outstanding intercompany debt balance (that is, U.S.-parent receivables less U.S.-parent payables) at the end of the previous period from the net outstanding balance at the end of the current period.

When a U.S. parent lends funds to its foreign affiliate, the balance of the U.S. parents' receivables (amounts due) from the affiliate increase; subsequently, when the affiliate repays the principal owed to its U.S. parent, the balance of the U.S. parent's receivables from the affiliate is reduced. Similarly, when a U.S. parent borrows funds from its foreign affiliate, the balance of the U.S. parent's payables (amounts owed) to the affiliate increase; subsequently, when the U.S. parent repays the principal owed to its affiliate, the balance of the U.S. parent's payables to the affiliate are reduced.

Increases in U.S. parents' receivables from, or reductions in parents' payables to, their foreign affiliates result in outflows on intercompany debt accounts. Reductions in U.S. parents' receivables from, or increases in U.S. parents' payables to, their affiliates result in inflows on intercompany debt accounts.

Not all intercompany debt transactions reflect actual flows of funds. For example, when distributed earnings, interest, or royalties and license fees from a foreign affiliate accrue to its U.S. parent, the full amount is included as an income or royalty and license fee receipt (an inflow) on U.S. direct investment abroad. If all or part of that amount is not actually transferred to the U.S. parent, the amount not transferred is entered into intercompany debt as an increase in the U.S. parent's receivables from its affiliate (an outflow).

The net change in intercompany debt includes changes in the value of capital leases and operating leases of more than 1 year between U.S. parents and their foreign affiliates. When property is leased by a foreign affiliate from its U.S. parent, the value of the leased property is recorded as an intercompany debt outflow because it increases the U.S. parent's receivables. The subsequent payment of principal on a capital lease or of depreciation on an operating lease is a return of capital and is recorded as an intercompany debt inflow because it reduces the U.S. parent's receivables. When property is leased to

24. The concept of "stock dividends" used here is essentially the same as that in the International Monetary Fund's *Balance of Payments Manual* under the heading of "bonus shares." BEA has retained its terminology because it is better understood by survey respondents.

25. For foreign affiliates that are depository institutions, debt outflows that are not permanently invested are excluded. For foreign affiliates that are financial intermediaries other than depository institutions, all debt outflows are excluded.

a U.S. parent by its foreign affiliate, the flows recorded are the reverse of the preceding.

Coverage, measurement, and presentation.—All intercompany debt flows result from transactions between U.S. parents and their foreign affiliates. Equity capital flows, however, may result from transactions between U.S. parents and either their foreign affiliates or unaffiliated foreign persons. An example of an equity capital flow resulting from a transaction between a U.S. parent and an unaffiliated foreign person is the parent's purchase of an affiliate's capital stock from such a person.

Direct investment capital outflows exclude transactions between two U.S. persons because transactions between U.S. persons are not international transactions. Thus, if one U.S. person purchases a direct investment interest in a foreign affiliate from another U.S. person, the new owner will establish or increase its ownership interest in the foreign affiliate, but no equity capital outflow is recorded, because the transaction occurs entirely within the United States. In addition, there is no net increase in U.S. claims on foreign countries; instead, one U.S. person's claims have merely been substituted for those of another.[26]

However, if a U.S. person has a portfolio (less-than-10-percent) investment interest and if, as a result of the purchase of an additional interest, the combined interests qualify as a direct investment, a direct investment capital outflow and offsetting portfolio investment capital inflow are recorded to change the status of the original investment. Similarly, if a U.S. parent's interest in an affiliate falls below 10 percent, a direct investment capital inflow is recorded to eliminate the direct investment interest, and an offsetting portfolio investment capital outflow is recorded for the new portfolio interest.

In cases of reverse investment, treatment of reverse equity capital and intercompany debt flows is the same as that for the analogous accounts in the direct investment position (see the section "U.S. direct investment position abroad").

Equity capital and intercompany debt outflows are disaggregated into several subaccounts in this publication. Equity capital outflows, which are recorded as a net amount, are disaggregated to show increases in equity separately from decreases. Intercompany debt outflows are disaggregated to show flows resulting from changes in U.S. parents' receivables separately from flows resulting from changes in U.S. parents' payables. Certain transactions may affect two of these subaccounts simultaneously and by exactly offsetting amounts. Such transactions are "grossed up"; that is, the outflows and the offsetting inflows are recorded in the affected subaccounts rather than being netted to zero and not recorded in any subaccount. However, because such gross flows are offsetting, they have no effect on net capital outflows. For example, the capitalization of intercompany debt, which gives rise to an intercompany debt inflow and an offsetting equity capital outflow, results in gross, but not net, flows.

Direct investment income

Direct investment income is the return on the U.S. direct investment position abroad; that is, it is the U.S. parents' return on their debt and equity investment in foreign affiliates. Direct investment income consists of earnings (that is, U.S. parents' shares in the net income of their foreign affiliates) and interest on intercompany debt between U.S. parents and foreign affiliates (where interest is defined as interest received by U.S. parents from their foreign affiliates, net of interest paid by U.S. parents to their foreign affiliates).

Direct investment income is recorded as accrued. When funds are not actually transferred to U.S. parents, offsetting entries are made in the direct investment capital account.

Direct investment income and earnings exclude all capital gains and losses whether or not such gains and losses are included in net income for income statement purposes. This treatment is intended to make income and earnings reflective of the current operating performance of foreign affiliates, as recommended by international guidelines for the compilation of balance of payments accounts.

Direct investment income (and the reinvested earnings component of capital outflows) are adjusted to reflect current-period prices prior to being entered into the international transactions accounts (see the introduction to the section "Direct Investment Position and Balance of Payments Data" for details). However, these adjustments are made on a global basis only and do not appear in the tables in this publication, which are disaggregated by country or by industry.

Direct investment income is measured before deduction (that is, gross) of all withholding taxes.[27] This treatment views taxes as being levied

26. Any revaluation of the investment by the new U.S. parent is treated as a valuation adjustment to the U.S. direct investment position abroad.

27. Withholding taxes are taxes withheld by governments on income or other funds that are distributed or remitted.

on the recipient of the distributed earnings or interest and thus as being paid across borders, even though, as an administrative convenience, the taxes are actually paid by the affiliate (or parent) whose disbursement gave rise to them. Thus, foreign withholding taxes on distributed earnings and on interest received by the U.S. parent are recorded as if they were paid by the parent, not by the foreign affiliate. Similarly, U.S. withholding taxes on interest payments by the U.S. parent are recorded as if they were paid by the foreign affiliate, not by the U.S. parent. Counter entries for these taxes are made in the U.S. international transactions accounts under unilateral transfers.

BEA collects data on withholding taxes on distributed earnings on its quarterly survey of U.S. direct investment abroad, but withholding taxes on interest—and on royalties and license fees and other private services, discussed in the next two sections—are only collected in benchmark surveys. Withholding taxes on these items must be estimated for nonbenchmark years; the estimates are only prepared on a global basis and are not disaggregated by country or industry.

Interest is recorded on a net basis, which is interest paid or credited to U.S. parents on debt owed to them by their foreign affiliates less interest paid or credited by U.S. parents on debt owed by them to their foreign affiliates.[28] Interest payments are netted against interest receipts because in the intercompany debt component of the U.S. direct investment position abroad, debt owed by U.S. parents to foreign affiliates is netted against debt owed by foreign affiliates to U.S. parents. Interest includes interest paid through debt creation or in kind, as well as interest paid in cash.

Interest includes net interest payments on capital leases between U.S. parents and foreign affiliates because the outstanding capitalized value of such leases is included in the intercompany-debt component of the direct investment position.

Direct investment royalties and license fees

Direct investment royalties and license fees consist of receipts by U.S. parents from, and payments by U.S. parents to, their foreign affiliates of fees for the use or sale of intangible property or rights, such as patents, industrial processes, trademarks, copyrights, franchises, designs, expertise, formulas, techniques, manufacturing rights, and other intangible assets or proprietary rights.

U.S. parents' receipts and U.S. parents' payments for royalties and license fees are entered separately into the U.S. international transactions accounts; U.S. parents' receipts are recorded as exports of services, and U.S. parents' payments are recorded as imports of services. Both receipts and payments are measured before deduction, or gross, of (foreign or U.S.) withholding taxes.

Receipts and payments of royalties and license fees are based on the accounting records of the U.S. parents and are reported as accrued. When funds are not actually transferred, offsetting entries are made in the intercompany debt account.

Other direct investment services

Transactions in other direct investment services consist of receipts by U.S. parents from, and payments by U.S. parents to, their foreign affiliates of service charges, of charges for the use of tangible property, and for film and television tape rentals.

U.S. parents' receipts and U.S. parents' payments are entered separately into the U.S. international transactions accounts; U.S. parents' receipts are recorded as exports of services, and U.S. parents' payments are recorded as imports of services. Both receipts and payments are measured before deduction, or gross, of (foreign or U.S.) withholding taxes.

Receipts and payments for other direct investment services are based on the accounting records of the U.S. parents and are reported as accrued. When funds are not actually transferred, offsetting entries are made in the intercompany debt account.

Service charges.—Service charges consist of fees for services—such as management, professional, or technical services—rendered between U.S. parents and their foreign affiliates. The service charges may represent sales of services or reimbursements. Sales of services are receipts for services rendered that are normally included in sales or gross operating revenues in the income statement of the seller. Normally, such receipts are included in sales if the performance of the service is a primary activity of the enterprise. (For example, if a U.S. management consulting firm provides management-consulting services to its foreign affiliates, the resulting revenues are included in its sales.)

28. For foreign affiliates that are depository institutions, interest payments other than those on permanently invested capital are excluded. For foreign affiliates that are financial intermediaries other than depository institutions, all interest payments are excluded.

Reimbursements are receipts for services rendered that are normally included in "other income" rather than in sales in the income statement of the provider of the service. Normally, the performance of the service is not a primary activity of the enterprise; however, the service may facilitate or support the conduct of the enterprise's primary activities. (For example, if a U.S. manufacturer provides management services to its foreign manufacturing affiliate, the associated charges would be recorded in its income statement under "other income" and reported to BEA as a reimbursement.)

Reimbursements may be allocated expenses or direct charges for the services rendered. Allocated expenses are overhead expenses that are apportioned among the various divisions or parts of an enterprise. An example would be R&D assessments on foreign affiliates by a U.S. parent for R&D the parent performs and shares with its affiliates.

Data on intercompany service charges are disaggregated into six categories—insurance services, financial services, transportation services, computer and information services, communication services, and "other services" —for the first time in this publication; these data are presented in table II.Z8. The new data were collected on the 1994 benchmark survey to allow all U.S. international transactions in private services—with both affiliated and unaffiliated foreigners—to be disaggregated by the categories specified in the International Monetary Fund's *Balance of Payments Manual.* The new data complement data from other BEA surveys that collect data on U.S. international transactions in private services. (See the footnotes to table II.Z8 for the definitions used on the 1994 benchmark survey for each category of intercompany service charges.)

The data on intercompany service charges by category indicate that 83.0 percent of U.S. parents' receipts and 74.9 percent of U.S. parents' payments were "other" services. These high percentages may result because survey respondents do not have the necessary information in their standard accounting records to provide a breakdown of their allocated expenses or of other services transactions with their foreign affiliates by type of service. The share for "other" services may also be large because many services (such as advertising, management, research and development, and accounting services) are not covered by the other five categories.[29]

Charges for the use of tangible property.—Charges for the use of tangible property include total lease payments under operating leases of 1 year or less and net rent on operating leases of more than 1 year. From the lessors' viewpoint, total lease payments for operating leases consist of two components: (1) Net rent, which covers interest, administrative expenses, and profit, and (2) depreciation, which is a return of capital.

For operating leases of more than 1 year, net rent is included in "other direct investment services," and depreciation is included as an intercompany debt flow in the direct investment capital account. For operating leases of 1 year or less, total lease payments—both net rent and depreciation—are included in "other direct investment services." Because the value of property leased to or from foreigners for 1 year or less is excluded from U.S. exports and imports of goods in the U.S. international transactions accounts, no export or import by U.S. parents is recorded in the trade-in-goods account; thus, no subsequent return of capital to or by U.S. parents in the form of depreciation is recorded in the direct investment capital account. Instead, such depreciation is considered part of rentals—a receipt for services rendered by, rather than a return of capital to, the lessor.

Film and television tape rentals.—Film and television tape rentals are rentals received by U.S. parents from, and rentals paid by U.S. parents to, their foreign affiliates for the sale or use of film and television tapes. Except for mass-produced films and tapes, such as prerecorded video cassettes (which are recorded in the U.S. trade-in-goods), such film and television tapes are treated as if they were being rented rather than sold, and payments for the tapes are considered payments for services rather than payments for goods. This treatment is used because the value of the tapes is derived mostly from the services—entertainment, education, and so on—that they provide, not from the value of the media on which they are recorded. Thus, the cost of the film and television tapes is excluded from the U.S. trade-in-goods account and is included instead in "other direct investment services."

29. The five categories were chosen on the basis of the detail recommended in the International Monetary Fund's *Balance of Payments Manual.*

Methodology for Foreign Direct Investment in the United States

This methodology was first published in 1995 in *Foreign Direct Investment in the United States: 1992 Benchmark Survey, Final Results.*

THE 1992 BENCHMARK Survey of Foreign Direct Investment in the United States was conducted by the Bureau of Economic Analysis (BEA) to obtain complete and accurate data on foreign direct investment in the United States in 1992. Reporting in the survey was mandatory under the International Investment and Trade in Services Survey Act.[1]

This publication presents 166 tables that contain nearly all the data collected in the benchmark survey. Two related types of data for U.S. affiliates of foreign companies are presented: (1) Financial and operating data, and (2) direct investment position and balance of payments data. The financial and operating data provide a variety of indicators of the overall operations of U.S. affiliates, including balance sheets and income statements; gross product; sales of goods and services; external financial position; taxes; property, plant, and equipment; employment and employee compensation; U.S. merchandise trade; research and development activities; and U.S. land owned and leased.

The direct investment position and balance of payments data cover transactions and positions between U.S. affiliates and their foreign parent groups. These data are the source of the official estimates of direct investment that enter the U.S. national income and product accounts and the U.S. international investment position and balance of payments (or "international transactions") accounts. Balance of payments data include data on direct investment capital and income flows between U.S. affiliates and their foreign parent groups and on receipts and payments of royalties, license fees, and charges for other services between U.S. affiliates and their foreign parent groups.

Data are presented for three groups of U.S. affiliates of foreign companies: (1) All affiliates, (2) nonbank affiliates, and (3) bank affiliates.[2] Most of the tables cover nonbank affiliates; bank affiliates, which report extensive data to other U.S. Government agencies, were required to report only a limited amount of data in the benchmark survey. Most of the tables for each group cover all the U.S. affiliates in the group irrespective of the degree of foreign ownership. For nonbank affiliates, however, a few tables covering only majority-owned affiliates also are provided.

A variety of table formats are used: Some tables present data for several related items, each of which is disaggregated by industry, country, or State; other tables present data for a single item disaggregated by industry cross-classified by country, by country cross-classified by industry, or by State cross-classified by country.

The data in this publication supersede the preliminary estimates that appeared in *Foreign Direct Investment in the United States: 1992 Benchmark Survey, Preliminary Results* and, in more summary form, in the article "Foreign Direct Investment in the United States: 1992 Benchmark Survey Results" in the July 1994 issue of the SURVEY OF CURRENT BUSINESS.

The financial and operating data for nonbank affiliates presented in this publication are comparable with BEA's universe estimates for previous benchmark years—the most recent being 1987. Estimates for nonbenchmark years from BEA's annual surveys provide similar information, but are less detailed. For information about how to obtain the earlier benchmark data and annual survey estimates, see appendix C.

To aid comparisons among the estimates for the various years, table 1 on the next page provides cross-references between the table numbers used in this publication and those used in the publications for other years. As it indicates, the table-numbering scheme of this publication also will be used in publications for 1993 forward.

Certain tables in this publication do not have counterparts in the earlier publications, because they cover items that were first collected in 1992. Other tables have counterparts in the earlier benchmark survey publications, but not in the annual survey publications, because they cover items that are not collected in the annual surveys. For example, the benchmark surveys collect direct investment position and balance of

1. Public Law 472, 94th Cong., 90 Stat. 2059, 22 U.S.C. 3101–3108, as amended.

2. In this publication, the term "bank affiliates" is used to describe all the affiliates that are classified as "depository institutions," which includes savings institutions and credit unions, as well as commercial banks.

payments data in addition to the financial and operating data collected in the annual surveys for nonbenchmark years.

In a few instances, an item collected in the benchmark survey was combined with one or more other items in the annual surveys. Thus, two items that are shown in a table in this publication may be shown as only one item in the corresponding table in the annual survey publications.

The data in this publication are based on data collected at the enterprise—or company—level. Establishment—or plant—level data on foreign direct investment in the United States are also available as a result of an ongoing project to link BEA's enterprise data on foreign direct investment in the United States with more detailed Census Bureau establishment data for all U.S. companies.[3]

Coverage

The benchmark survey covered every U.S. business enterprise that was a U.S. affiliate of a foreign person. A U.S. affiliate is a U.S. business enterprise in which a foreign person owns or controls, directly or indirectly, at least 10 percent of the voting securities if the enterprise is incorporated or an equivalent interest if the enterprise is unincorporated.

3. Publications presenting the establishment data are available for 1987–91 (see appendix C). The 1987 publication presents data on the number, employment, payroll, and shipments or sales of the establishments of U.S. affiliates in both manufacturing and nonmanufacturing industries. Summary data and an analysis appeared in "Foreign Direct Investment in the United States: Establishment Data for 1987" in the October 1992 SURVEY OF CURRENT BUSINESS. The 1988–91 publications present data on the manufacturing establishments of U.S. affiliates for most of the items covered by the Census Bureau's Annual Survey of Manufactures, including value added, shipments, employment, total employee compensation, employee benefits, hourly wage rates of production workers, cost of materials and energy used, inventories by stage of fabrication, and expenditures for new plant and equipment. Summary data for 1990 and an analysis of the data appeared in "Characteristics of Foreign-Owned U.S. Manufacturing Establishments" in the January 1994 SURVEY.

A parallel project has also linked BEA's data on foreign direct investment in the United States to Bureau of Labor Statistics (BLS) data on all U.S. businesses. That link resulted in data, released by BLS, for 1989–91 on the number, employment, and payroll of establishments of U.S. affiliates for both manufacturing and nonmanufacturing industries. In addition, BLS data are available on the occupational structure of manufacturing establishments of U.S. affiliates in 1989. For information on these data, call BLS at (202) 606–6568.

Data from the two projects differ, particularly at the most detailed industry levels, because of differences in coverage, classification, timing, and definitions.

Table 1.—Comparison of Tables for Nonbank U.S. Affiliates in This Publication With Those in the Publications for 1993 Forward, the 1987 Benchmark Survey Publication, and the Publications for 1988–91

Table in this publication[1]	Comparable table in annual publications for 1993 forward	Comparable table in 1987 benchmark survey publication	Comparable table in 1988–91 publications
Group A. Selected Data			
A-1–A-2	A-1–A-2	A-1–A-2	A-1–A-2
A-6	A-6		
A-7–A-9	A-7–A-9	A-6–A-8	A-6–A-8
Group B. Balance Sheet			
B-1–B-6	B-1–B-6	B-1–B-6	B-1–B-6
B-7–B-8		B-7–B-8	
B-9		B-10	
Group C. Composition of External Financial Position			
C-1	C-1	C-1	C-1
C-2–C-7		C-2–C-7	
C-8		C-9	
Group D. Property, Plant, and Equipment			
D-1–D-3	D-1–D-3	D-1–D-3	D-1–D-3
D-4–D-5		D-5–D-6	
D-6–D-7	D-6–D-7	D-8–D-9	D-8–D-9
D-8		D-7	
D-9–D-13	D-9–D-13	D-10–D-14	D-10–D-14
D-14–D-15		D-15–D-16	
D-16–D-17		D-18–D-19	
D-18–D-20	D-18–D-20	D-20–D-22	D-20–D-22
D-21–D-27	D-21–D-27	D-24–D-30	D-24–D-30
Group E. Income Statement			
E-1–E-4	E-1–E-4	E-1–E-4	E-1–E-4
E-5–E-6		E-5–E-6	
E-7–E-8	E-7–E-8	E-7–E-8	E-7–E-8
E-9		E-9	
E-10–E-15	E-10–E-15	E-10–E-15	E-10–E-15
E-16–E-17		E-16–E-17	E-16–E-17
Group F. Gross Product			
F-1–F-3	F-1–F-3		
F-4			
F-5–F-6	F-5–F-6		
Group G. Employment and Employee Compensation			
G-1–G-4	G-1–G-4	F-1–F-4	F-1–F-4
G-5		F-5	
G-6	G-6	F-6	
G-7–G-8	G-7–G-8	F-7–F-8	F-7–F-8
G-9		F-9	
G-10–G-11	G-10–G-11	F-10–F-11	F-10–F-11
G-12		F-12	
G-13	G-13	F-14	F-14
G-14		F-15	
G-15	G-15		
G-16–G-17	G-16–G-17	F-16–F-17	F-16–F-17
G-18	G-18	F-19	F-19
Group H. U.S. Merchandise Trade			
H-1–H-3	H-1–H-3	G-1–G-3	G-1–G-3
H-4	H-4	G-4	
H-5		G-5	
H-6	H-6	G-6	G-6
H-7	H-7	G-7	
H-8–H-36		G-8–G-36	
H-37	H-37		
Group I. Interest, Dividends, Taxes Other Than Income Taxes, and Research and Development Expenditures			
I-1–I-2	I-1–I-2	H-1–H-2	H-1–H-2
I-3		H-3	
I-4–I-5			
I-6	I-6	H-4	
Group J. Selected Data for Majority-Owned Affiliates			
J-1–J-3	J-1–J-3		
J-4			
J-5	J-5		

1. This publication also contains tables on the direct investment position and balance of payments data (Groups K, L, M, and N); but these tables are not listed, because they are outside the scope of the annual publications for 1993 forward and for 1988–91, which cover only financial and operating data of U.S. affiliates.

The financial and operating data cover every U.S. business enterprise that was a U.S. affiliate at the end of its 1992 fiscal year. In addition, the direct investment position and balance of payments data cover U.S. businesses that were U.S. affiliates sometime during their 1992 fiscal year but that were not affiliates at the end of the year, because the foreign parents' interest in them had been liquidated or sold. The U.S. affiliates that were liquidated or sold during the year are covered so that the coverage of the direct investment position and balance of payments data in this publication is consistent with that of the U.S. international investment position and balance of payments accounts.[4] Because these former affiliates were not required to report in the benchmark survey, estimates for them were made, based on information from other BEA surveys.

As a result of this difference in coverage, some balance of payments data items may not be fully comparable with their counterparts in the financial and operating data. For example, the total for net income shown in the financial and operating data excludes the net income of these former affiliates, but the foreign parents' shares of this income is included in the balance of payments measure of income on foreign direct investment in the United States.

In 1992, the direct investment universe consisted of 18,233 U.S. affiliates (table 2). Affiliates with total assets, sales, or net income greater than $1 million were required to complete a benchmark survey report; 12,672 affiliates were required to report. The 5,551 affiliates that did not meet these criteria were exempt from reporting, but they had to file an exemption claim on which they indicated the value of their total assets, sales, and net income and the amount of U.S. land that they owned. Of the total *number* of affiliates in the direct investment universe, affiliates that were required to report accounted for 70 percent and those that were exempt from reporting, for 30 percent. However, because only very small affiliates were exempt from reporting, affiliates that were required to report accounted for virtually all of the universe in terms of *value.*

In table 3, the data for exempt affiliates are disaggregated by country of ultimate beneficial owner. Except for tables 2 and 3, all the tables cover only U.S. affiliates that were required to complete a benchmark survey report.

4. Because these affiliates were sold or liquidated during 1992, they are excluded from the investment position at yearend 1992. However, some tables present data on the position at yearend 1991, when these affiliates were still included in the foreign direct investment universe and, hence, in the estimates.

Table 2.—Selected Data for the Universe of U.S. Affiliates, by Whether or Not Reported in the Benchmark Survey

	Number of affiliates	Millions of dollars			Thousands of hectares of land owned
		Total assets	Sales	Net income	
Universe of U.S. affiliates	18,223	3,000,127	1,334,485	–20,702	5,871
U.S. affiliates that reported in the survey	12,672	2,998,593	1,333,867	–20,575	5,739
U.S. affiliates that were exempt from reporting	5,551	1,534	618	–127	132

Concepts and Definitions

This section gives the basic concepts and definitions used in the 1992 benchmark survey. Special mention is made of changes that were introduced in the survey.

Direct investment

Direct investment implies that a person in one country has a lasting interest in, and a degree of influence over the management of, a business enterprise in another country. For the United States, in accordance with international guidelines, ownership or control of 10 percent or more of an enterprise's voting securities, or the equivalent, is considered evidence of such a lasting interest or degree of influence over management.[5] Thus, foreign direct investment in the United States is ownership or control, direct or indirect, by one foreign person of 10 percent or more of the voting securities of an incorporated U.S. business enterprise or an equivalent interest in an unincorporated U.S. business enterprise. Only foreign investment in the United States that is direct investment was covered by the 1992 benchmark survey.

Direct investment in a U.S. business enterprise can result from direct or indirect ownership by a foreign person. In direct ownership, the foreign person itself holds the ownership interest in the U.S. business enterprise. In indirect ownership, one or more tiers of ownership exist between the U.S. business enterprise and the foreign person. For example, a U.S. business enterprise may be directly owned by another U.S. business enterprise that is, in turn, owned by the foreign person. A foreign person's percentage of indirect voting ownership in a given U.S. business enterprise is equal to the direct-voting-ownership percentage of the foreign person in the first U.S.

5. See International Monetary Fund (IMF), *Balance of Payments Manual,* 5th ed. (Washington, DC: IMF, 1993); and Organisation for Economic Co-operation and Development (OECD), *Detailed Benchmark Definition of Foreign Direct Investment,* 2nd ed. (Paris: OECD, 1992).

business enterprise in the ownership chain, times the first enterprise's direct-voting-ownership percentage in the second U.S business enterprise in the chain, times the corresponding percentages for all intervening enterprises in the chain, times the last intervening enterprise's direct-voting-ownership percentage in the given U.S. business enterprise. If more than one ownership chain exists, the percentages of direct and indirect ownership in all chains are summed to determine the foreign person's ownership percentage.

Table 3.—Data for U.S. Affiliates That Were Exempt From Reporting in the Benchmark Survey, by Country of UBO

	Number of affiliates	Millions of dollars			Thousands of hectares of land owned
		Total assets	Sales	Net income	
All countries	5,551	1,534	618	–127	132
Canada	1,124	252	91	–14	28
Europe	2,234	627	286	–54	89
Austria	31	10	2	–1	2
Belgium	43	18	8	–2	2
Denmark	19	4	3	–1	1
Finland	5	2	1	(*)	(*)
France	302	63	43	–5	7
Germany	753	213	71	–3	34
Ireland	8	2	2	1	0
Italy	95	36	14	–1	4
Liechtenstein	65	21	3	–2	2
Luxembourg	12	4	1	(*)	(*)
Netherlands	118	31	16	–5	3
Norway	15	4	3	–2	1
Spain	32	9	6	–1	(*)
Sweden	28	7	4	–2	(*)
Switzerland	283	96	38	–4	18
United Kingdom	380	96	63	–23	16
Other	45	10	7	–1	(*)
Latin America and Other Western Hemisphere	746	253	71	–14	10
South and Central America	548	180	53	–11	7
Brazil	34	10	6	–2	(*)
Mexico	190	62	28	–2	3
Panama	135	41	6	–4	1
Venezuela	50	18	3	–1	1
Other	139	50	10	–2	3
Other Western Hemisphere	198	73	18	–3	3
Bahamas	18	7	2	(*)	(*)
Bermuda	21	5	3	(*)	1
Netherlands Antilles	82	36	7	–1	(*)
U.K. Islands, Caribbean	58	19	5	–2	1
Other	19	6	2	(*)	(*)
Africa	22	5	3	–1	(*)
South Africa	2	1	1	(*)	(*)
Other	20	4	2	–1	(*)
Middle East	103	35	15	–2	2
Israel	21	8	4	(*)	0
Kuwait	13	6	3	(*)	(*)
Lebanon	4	1	(*)	(*)	(*)
Saudi Arabia	33	12	3	–1	(*)
United Arab Emirates	11	2	2	(*)	(*)
Other	21	6	3	(*)	(*)
Asia and Pacific	1,273	348	139	–42	2
Australia	71	17	10	–1	(*)
China	10	2	1	(*)	0
Hong Kong	72	20	11	(*)	(*)
Indonesia	4	1	(*)	(*)	(*)
Japan	992	269	101	–37	2
Korea, Republic of	21	6	2	(*)	(*)
Malaysia	4	1	(*)	(*)	(*)
New Zealand	7	1	1	(*)	0
Philippines	17	9	1	–1	(*)
Singapore	15	5	4	–1	0
Taiwan	33	13	5	–1	(*)
Other	27	5	2	(*)	(*)
United States	49	14	13	(*)	(*)
Addenda:					
European Communities (12)	1,771	480	228	–41	68
OPEC	132	48	12	–3	2

NOTE.—See "Notes to the Tables."

Direct investment refers to ownership by a single person, not to the combined ownership by all the persons in a country. A "person" is broadly defined to include any individual, branch, partnership, associated group, association, estate, trust, corporation, or other organization (whether or not organized under the laws of any State), and any government (including a foreign government, the U.S. Government, a State or local government, or any corporation, financial institution, or other entity or instrumentality thereof, including a government-sponsored agency).

An associated group, although comprised of two or more persons, is treated in this definition as a single person. An associated group consists of two or more persons who exercise their voting privileges in a concerted manner by the appearance of their actions, by agreement, or by an understanding, in order to influence the management of a business enterprise. The following are deemed to be an associated group: (1) Members of the same family, (2) a business enterprise and one or more of its officers or directors, (3) members of a syndicate or joint venture, or (4) a corporation and its domestic subsidiaries. Thus, direct investment is considered to exist as long as the combined ownership interest of all members of the group is at least 10 percent, even if no one member owns 10 percent or more. The definition assumes, in effect, that the members' influence over management is comparable to that of a single person with the same ownership interest.

Investment by a foreign person of less than 10 percent in a U.S. business enterprise is not considered direct investment, even if another foreign person—of the same country or of another country—has an interest of at least 10 percent in the enterprise. Thus, if one foreign person owns 11 percent and another owns 9 percent, the 11-percent interest is included, but the 9-percent interest is excluded. However, if two or more foreign persons each hold an interest of at least 10 percent, each such interest is included.

Determination of residency

For purposes of the benchmark survey (and BEA's other direct investment surveys), the "United States" means the 50 States, the District of

Columbia, the Commonwealth of Puerto Rico, and all U.S. territories and possessions. U.S. offshore oil and gas sites are also considered to be in the United States.

"Foreign" means that which is situated outside the United States or which belongs to, or is characteristic of, a country other than the United States.

The country of residence, rather than the country of citizenship of a person is used to determine whether a direct investor or the business enterprise owned by a direct investor is U.S. or foreign. A U.S. person is any person who resides in, or is subject to the jurisdiction of, the United States, and a foreign person is any person who resides outside the United States or who is subject to the jurisdiction of a country other than the United States.

A person is considered a resident of, or subject to the jurisdiction of, the country in which the person is located if the person resides or expects to reside in it for 1 year or more. Under this rule, individuals who reside or expect to reside outside their country of citizenship for less than 1 year are considered residents of their country of citizenship, whereas individuals who reside or expect to reside outside their country of citizenship for 1 year or more are considered residents of the country in which they are residing.

There are two exceptions to this rule. First, individuals (and their immediate families) who either own or are employed by a business enterprise in their country of citizenship and who are residing outside of that country for 1 year or more in order to conduct business for the enterprise are considered residents of their country of citizenship if they intend to return within a reasonable period of time. Second, individuals who reside outside their country of citizenship because they are government employees (such as diplomats, consular officials, members of the armed forces, and their immediate families) are considered residents of their country of citizenship regardless of their length of stay elsewhere.

The U.S. affiliate

A U.S. affiliate is a U.S. business enterprise in which there is foreign direct investment. The affiliate is called a *U.S.* affiliate to denote that it is located in the United States.

A business enterprise is any organization, association, branch, or venture and the ownership of any real estate that exists for profitmaking purposes or to otherwise secure economic advantage. Therefore, by definition, a business enterprise excludes the ownership of real estate exclusively for personal use; a residence that is leased to others by an owner who intends to reoccupy it is considered real estate held for personal use and not a business enterprise.

A business enterprise, and therefore an affiliate, may be either incorporated or unincorporated. Unincorporated affiliates primarily take the form of branches and partnerships. They may also include directly held commercial property.

A U.S. affiliate that is a branch consists of operations or activities in the United States that a foreign person conducts in its own name rather than through an entity separately incorporated in the United States. By definition, a branch is wholly owned.

In general, the U.S. operations or activities of a foreign person are considered to be a U.S. affiliate if they are legally or functionally separable from the foreign operations or activities of the foreign person. In most cases, it is clear whether the U.S. operations or activities constitute a U.S. affiliate. If an operation or activity is incorporated in the United States—as most are—it is *always* considered a U.S. affiliate. The situation is not always so clear with unincorporated U.S. operations or activities. Although most are legally or functionally separable from those of the foreign person and thus are considered U.S. affiliates, some are not clearly separable, and the determination of whether they constitute U.S. affiliates is made on a case-by-case basis, depending on the weight of evidence.

The following characteristics would indicate that the unincorporated operation or activity probably is a U.S. affiliate:

(1) The unincorporated operation or activity pays U.S. income taxes.

(2) It has a substantial physical presence in the United States, as evidenced by plant and equipment or employees that are permanently located in the United States.

(3) It has separate financial records that allow the preparation of financial statements, including a balance sheet and income statement. (A mere record of disbursements to, or receipts from, the U.S. operation or activity would not constitute a "financial statement" for this purpose.)

(4) It takes title to the goods it sells and receives revenues from the sale, or it receives funds from customers for its own account for services it performs.

The following characteristics would indicate that the unincorporated operation or activity probably is *not* a U.S. affiliate:

(1) It pays no U.S. income taxes.
(2) It has limited physical assets or few employees permanently located in the United States.
(3) It has no separate financial records that allow the preparation of financial statements.
(4) It conducts business in the United States only for the foreign person's account, not for its own account.
(5) It engages only in sales promotion or public relations activities.
(6) Its expenses are paid by the foreign parent.

Consistent with these guidelines, the U.S. stations, ticket offices, and terminal or port facilities of a foreign airline or ship operator that provide services only to the airline's or ship operator's operations are not considered U.S. affiliates because most of the revenues, such as passenger fares and freight charges, collected by these facilities are generated by the travel and transportation services rendered by the airline or ship operator of which they are a part, not by the activities of these facilities. However, if the facilities provide services to unaffiliated persons rather than to the foreign airline or ship operator that owns them, they are considered U.S. affiliates.

Each U.S. affiliate was required to report on a fully consolidated domestic (U.S.) basis. The full consolidation includes all other U.S. affiliates of the foreign parent in which the affiliate directly or indirectly owned more than 50 percent of the outstanding voting interest. The consolidation excludes all other U.S. business enterprises and all foreign business enterprises owned by the U.S. affiliate.

There were two exceptions to this general consolidation rule. First, a given U.S. affiliate may have been excluded from full consolidation because of the lack of effective control. Second, a U.S. affiliate in which a direct ownership interest was held by one foreign person and an indirect ownership interest was held by another foreign person was not permitted to be consolidated in the report of another U.S. affiliate; this rule ensured that data on transactions and positions of both owners could be obtained from the affiliate.

The foreign owners

The existence of direct investment in a U.S. affiliate is determined solely on the basis of the voting shares (or the equivalent) held by its *foreign parent.* To more completely describe the foreign ownership of a U.S. affiliate, however, reference must be made to two additional entities—the *foreign parent group* and the *ultimate beneficial owner* (UBO). All three concepts are necessary to identify fully the owners of U.S. affiliates. The foreign parent of a U.S. affiliate must be identified to establish that foreign direct investment does in fact exist. The UBO of each U.S. affiliate is identified to ascertain the person that ultimately owns or controls and, therefore, ultimately derives the benefits from owning or controlling the U.S. affiliate.[6] Members of the foreign parent group are identified to distinguish foreign persons that are affiliated with a U.S. affiliate from those that are not.

The affiliate's transactions with all these persons are included in the investment income, services, and capital accounts of the U.S. balance of payments, and the direct positions in the affiliate that are held by all members of the foreign parent group, not only by its foreign parent, are included in the foreign direct investment position in the United States.[7]

A given U.S. affiliate may have more than one ownership chain above it, if it is owned at least 10 percent by more than one foreign person. In such cases, the affiliate may have more than one foreign parent, UBO, and foreign parent group.

Foreign parent.—A foreign parent is the first person outside the United States in a U.S. affiliate's ownership chain that has a direct investment interest in the affiliate. By this definition, the foreign parent consists *only* of the first person outside the United States in the affiliate's ownership chain; all other affiliated foreign persons are excluded.

Ultimate beneficial owner.—The UBO of a U.S. affiliate is that person, proceeding up the affiliate's ownership chain beginning with and including the foreign parent, that is not owned more than 50 percent by another person. The UBO excludes other affiliated persons. If the foreign parent is not owned more than 50 percent by another person, the foreign parent and the UBO are the same. Unlike the foreign parent, the UBO may be either

6. UBO's that were individuals were not required to be identified by name; however, their countries of location were required.

7. Another type of transaction—trade in goods between affiliates and members of their foreign parent groups—is also included in the U.S. balance of payments accounts, but it is not shown separately. Separate data on such trade, however, were obtained in the benchmark survey as part of the U.S.-affiliate financial and operating data; see the section on "Financial and Operating Data."

a U.S. person or a foreign person (though most are foreign).

Both the foreign parent and the UBO are "persons." Thus, they may be business enterprises; religious, charitable, or other nonprofit organizations; individuals; governments; estates or trusts; associated groups; and so forth. In the case of a foreign estate, the estate, not its beneficiary, is considered the foreign parent or UBO. For the investments of a foreign trust, either the creator or the beneficiary of the trust may be considered the foreign parent or UBO, depending on the circumstances. The creator is considered the foreign parent or UBO if the creator is a corporation or other organization that designates its own shareholders or members as beneficiaries or if there is a reversionary interest—that is, the interest in the trust may later be returned to the creator. In all other cases, the beneficiary of the trust is considered the foreign parent or UBO.

Foreign parent group.—A foreign parent group consists of (1) the foreign parent, (2) any foreign person, proceeding up the foreign parent's ownership chain, that owns more than 50 percent of the person below it, up to and including the UBO, and (3) any foreign person, proceeding down the ownership chain(s) of each of these members, that is owned more than 50 percent by the person above it.

Accounting Principles

In most cases, data in the 1992 benchmark survey were required to be reported as they would have been for stockholders' reports rather than for tax or other purposes. Thus, U.S. generally accepted accounting principles (GAAP) were followed unless otherwise indicated by the survey instructions. The survey instructions departed from GAAP in cases where the departure would result in data that were conceptually or analytically more useful or appropriate for direct investment purposes. One major departure from GAAP was the use of unique consolidation rules (see the preceding discussion of consolidated reporting for "The U.S. affiliate" in the section "Concepts and Definitions").

Fiscal Year Reporting

Data for U.S. affiliates were required to be filed on a fiscal year basis. An affiliate's 1992 fiscal year was defined to be the affiliate's financial reporting year that ended in calendar year 1992.

The fiscal year data from the benchmark survey that are presented in this publication are not comparable with the calendar year estimates of transactions between U.S. affiliates and their foreign parents that appear in the U.S. balance of payments accounts or to the calendar year estimates of the foreign direct investment position in the United States. The benchmark survey data must be adjusted to a calendar year basis before they are entered into the foreign direct investment position and the balance of payments accounts.

The extent of the noncomparability between the benchmark survey data presented here and the direct investment estimates that will be presented in the foreign direct investment position and balance of payments accounts depends on the number and size of the U.S. affiliates whose fiscal years do not correspond to the calendar year. Figures on the number of affiliates that have fiscal years that do not correspond to the calendar year and on the portion of the benchmark survey data accounted for by these affiliates are shown in table 4.

Unlike the direct investment position and balance of payments data, financial and operating data in all BEA surveys are consistently collected and published on a fiscal year basis.

Confidentiality

Under the International Investment and Trade in Services Survey Act, the direct investment data collected by BEA from individual respondents are confidential; thus, they cannot be published in such a manner "that the person to whom the information relates can be specifically identified." For this publication, each cell in a table was tested to determine whether the data it contained should be suppressed (that is, not shown) for confidentiality reasons. A "(D)" in a cell indicates that the data were suppressed to avoid the disclosure of information on an individual company. For employment data, a letter representing a size range is entered in lieu of a "(D)".

The act further specifies that the data must be used for statistical and analytical purposes only; the use of an individual company's data for tax, investigative, or regulatory purposes is prohibited. Access to the data is limited to officials and employees (including consultants and contractors and their employees) of government agencies designated by the President to perform functions under the act. In addition, the Foreign Direct Investment and International Financial Data Im-

provements Act of 1990 granted access to certain other government agencies for limited statistical purposes. For example, the act granted access to the Bureau of the Census and the Bureau of Labor Statistics for the purpose of linking BEA's enterprise-, or company-, level data for foreign direct investment to their establishment-, or plant-, level data for all U.S. companies to obtain their more detailed data, by industry and by State, for the foreign-owned enterprises that report to BEA.

Private individuals may obtain access to the data only in the capacity of experts, consultants, or contractors whose services are procured by BEA, usually on a temporary or intermittent basis, for purposes of carrying out projects under the act—for example, to perform research on foreign direct investment. These people are subject to the same confidentiality requirements as regular employees of BEA or other government agencies performing functions under the act.

Classification of Data

Both the financial and operating data and the direct investment position and balance of payments data from the benchmark survey can be classified by industry of affiliate, by country and industry of UBO, and by country and industry of foreign parent. In addition, the direct investment position and balance of payments data can be classified by country of each member of the foreign parent group.

Most of the data in the tables in this publication that are disaggregated by country are classified according to the country of the UBO. However, the data in tables 5 and 6 in this methodology and in table A–7 in "Part II: Nonbank U.S. Affiliates" are classified by country of foreign parent.

Classification by country of UBO usually is used for financial and operating data because the country that ultimately owns or controls, and that therefore derives benefits from owning or controlling, a U.S. affiliate generally is considered most important for analyzing these data. Except for the data in table 5, all balance of payments and direct investment position data in this publication are also classified by country of UBO, so that both types of data presented will be classified on the same basis. In contrast, the data in the U.S. balance of payments accounts and in the foreign direct investment position in the United States are usually classified by the country of each member of the foreign parent group with which there are transactions or positions.

Table 4.—Selected Data of U.S. Affiliates, by Fiscal Year Ending Date

	Total	Fiscal year ending date				
		January 1 to March 31	April 1 to June 30	July 1 to September 30	October 1 to December 31	Addendum: December 31
	All affiliates					
Number of affiliates	12,672	1,665	1,058	1,059	8,890	8,355
Total assets (millions of dollars)	2,998,593	701,648	79,743	103,804	2,113,399	1,989,540
Sales (millions of dollars)	1,333,867	289,347	67,589	89,107	887,824	840,019
Net income (millions of dollars)	–20,575	–4,378	–24	–1,022	–15,151	–15,021
Employee compensation (millions of dollars)	188,541	24,207	9,618	14,329	140,388	130,901
Thousands of employees	4,843.3	717.3	269.6	420.6	3,435.8	3,177.1
Foreign direct investment position in the United States (millions of dollars)	430,201	59,552	22,562	31,357	316,731	295,611
Direct investment income (millions of dollars)	133	–1,328	0	422	1,038	318
	Nonbank affiliates					
Number of affiliates	12,138	1,553	1,045	1,045	8,495	7,975
Total assets (millions of dollars)	1,825,219	243,684	75,904	90,918	1,414,713	1,351,077
Sales (millions of dollars)	1,231,972	240,293	67,354	88,341	835,984	791,389
Net income (millions of dollars)	–21,331	–4,165	6	–908	–16,265	–16,129
Employee compensation (millions of dollars)	182,079	23,675	9,591	14,182	134,630	125,318
Thousands of employees	4,715.4	709.9	269.2	417.6	3,318.7	3,062.8
Foreign direct investment position in the United States (millions of dollars)	408,630	59,622	22,468	31,090	295,449	274,617
Direct investment income (millions of dollars)	405	–1,141	22	554	970	178
	Bank affiliates					
Number of affiliates	534	112	13	14	395	380
Total assets (millions of dollars)	1,173,375	457,963	3,840	12,886	698,686	638,463
Sales (millions of dollars)	101,895	49,054	235	765	51,840	48,630
Net income (millions of dollars)	756	–213	–31	–114	1,114	1,108
Employee compensation (millions of dollars)	6,462	531	27	146	5,758	5,583
Thousands of employees	127.9	7.3	.4	3.0	117.2	114.3
Foreign direct investment position in the United States (millions of dollars)	21,571	–70	94	266	21,282	20,994
Direct investment income (millions of dollars)	–273	–187	–22	–132	68	140

NOTE.—See "Notes to the Tables."

Table 5.—Foreign Direct Investment Position in the United States and Direct Investment Income, by Country of UBO, Foreign Parent, and Each Member of the Foreign Parent Group

[Millions of dollars]

	By country of UBO		By country of foreign parent		By country of each member of the foreign parent group	
	Position	Income	Position	Income	Position	Income
All countries	430,201	133	430,201	133	430,201	133
Canada	50,624	1,013	50,911	886	40,894	120
Europe	237,911	3,885	246,072	4,159	254,427	4,577
Austria	695	−104	708	−84	678	−99
Belgium	3,218	133	2,426	137	3,991	115
Denmark	45	−99	180	−131	436	−127
Finland	2,521	−114	2,323	−101	1,812	−122
France	30,550	−1,093	27,605	−230	24,759	−290
Germany	35,912	−107	33,820	−236	30,895	−607
Ireland	(D)	(D)	1,808	44	2,484	50
Italy	4,040	−740	359	−138	1,727	−296
Liechtenstein	165	−79	163	−58	182	−58
Luxembourg	779	−41	740	−27	643	−16
Netherlands	41,433	1,344	70,347	565	68,426	1,237
Norway	(D)	−21	976	−8	1,016	−8
Spain	619	37	490	83	988	90
Sweden	8,252	−104	7,387	−35	6,654	−60
Switzerland	20,475	419	19,305	380	19,810	199
United Kingdom	86,389	4,528	77,011	4,046	89,463	4,615
Other	461	(D)	423	−49	463	−45
Bosnia and Herzegovina	−4	(*)	−4	(*)	−4	(*)
Cyprus	7	−3	0	0	2	(*)
Czechoslovakia	6	(*)	(*)	(*)	(*)	(*)
Gibraltar	0	0	8	−2	75	2
Greece	(D)	(D)	86	−28	81	−27
Hungary	7	(*)	(D)	−1	(D)	−1
Iceland	(D)	5	(D)	5	4	5
Malta	0	0	0	0	(D)	0
Poland	46	(*)	46	(*)	46	(*)
Portugal	−18	−8	−32	−6	−30	−8
Romania	(D)	−2	(D)	−2	(D)	−2
Russia	128	2	127	1	125	(*)
Serbia	9	−8	9	−8	9	−8
Slovenia	38	−5	30	−6	30	−6
Turkey	89	−1	88	−1	88	−1
Ukraine	2	(*)	2	(*)	2	(*)
Latin America and Other Western Hemisphere	10,877	159	19,871	−631	22,129	−273
South and Central America	(D)	310	7,158	518	8,258	562
Brazil	1,457	83	569	29	507	29
Mexico	1,249	−10	1,555	63	1,424	63
Panama	822	6	4,078	364	5,350	394
Venezuela	2,254	208	435	46	407	45
Other	(D)	23	521	15	570	30
Argentina	370	(D)	349	(D)	415	(D)
Bolivia	(*)	(*)	(*)	(*)	(*)	(*)
Chile	37	1	(D)	2	24	2
Colombia	147	−18	93	−21	81	−21
Costa Rica	10	2	3	(*)	−2	(*)
Ecuador	128	(*)	7	−1	7	−1
El Salvador	43	(*)	1	(*)	1	(*)
French Guiana	0	0	2	(*)	2	(*)
Guatemala	6	1	1	(*)	(*)	(*)
Guyana	0	0	0	0	(*)	0
Honduras	16	1	2	(*)	−1	(*)
Nicaragua	9	2	0	0	0	0
Paraguay	5	(*)	0	0	0	0
Peru	(D)	(D)	(D)	(D)	(D)	(D)
Suriname	(*)	(*)	(*)	(*)	(*)	(*)
Uruguay	(D)	−1	31	−1	(D)	−1
Other Western Hemisphere	(D)	−151	12,713	−1,148	13,871	−835
Bahamas	431	−77	2,038	24	903	−22
Bermuda	(D)	76	2,140	−170	1,207	−172
Netherlands Antilles	1,095	−42	4,305	−395	9,628	−192
U.K. Islands, Caribbean	554	−107	3,988	−604	1,316	−494
Other	58	−2	242	−3	817	45
Antigua and Barbuda	2	−3	32	−2	32	−2
Aruba	9	2	27	2	(D)	(D)
Barbados	(D)	−2	161	−2	390	24
Dominican Republic	24	2	2	(*)	2	(*)
French Islands, Caribbean	1	(*)	1	(*)	1	(*)
Grenada	1	(*)	1	(*)	1	(*)
Haiti	1	(*)	(*)	(*)	(*)	(*)
Jamaica	(*)	(*)	(D)	(*)	(D)	(*)
St. Kitts and Nevis	(D)	−1	(D)	(*)	1	(D)
Trinidad and Tobago	5	1	(*)	(*)	1	(*)
United Kingdom Islands, Atlantic	2	(*)	0	0	0	0
Africa	(D)	−40	943	−56	1,192	−49
South Africa	1,211	−2	0	(*)	−16	(*)
Other	(D)	−38	943	−56	1,208	−48
Algeria	(D)	4	0	0	0	0
Congo	0	0	0	0	(D)	(*)
Egypt	26	−8	23	−6	27	−8
Ethiopia	(D)	(D)	0	0	0	0
Gabon	(D)	−1	0	0	0	0
Guinea	(*)	0	(*)	0	(*)	0
Kenya	0	0	0	0	(D)	0
Liberia	139	−27	879	−39	1,163	−31
Morocco	31	(*)	(D)	(D)	17	(D)
Namibia	2	(*)	0	0	0	0
Nigeria	(D)	(D)	(D)	(D)	12	(D)
Tanzania	0	0	0	0	(*)	0
Middle East	(D)	−544	5,708	−210	5,016	−268
Israel	1,588	−117	1,369	−110	1,396	−110
Kuwait	3,743	−95	1,650	−36	1,640	−29
Lebanon	166	−44	10	−1	10	−1
Saudi Arabia	4,086	−141	2,398	−30	(D)	−95
United Arab Emirates	(D)	−134	142	−31	124	−31
Other	370	−13	139	−2	(D)	−1
Bahrain	49	4	58	4	82	4
Iran	10	(D)	(*)	(D)	−1	(D)
Jordan	125	−3	55	(*)	46	−1
Oman	(D)	(D)	(D)	(D)	(D)	(D)
Qatar	8	(*)	(D)	(*)	(D)	(*)
Syria	(D)	−8	3	(*)	3	(*)
Asia and Pacific	114,771	−4,638	106,696	−4,016	106,543	−3,974
Australia	6,545	−574	6,698	−413	6,120	−508
China	(D)	(D)	186	−4	201	−4
Hong Kong	(D)	−194	808	−59	1,135	−55
Indonesia	126	−54	36	−42	37	−42
Japan	99,224	−3,226	96,764	−3,071	95,969	−2,968
Korea, Republic of	109	−270	67	−268	304	−255
Malaysia	240	−5	3	−6	68	−6
New Zealand	(D)	−75	219	−61	209	−56
Philippines	236	−1	53	−7	54	−7
Singapore	744	−29	723	−29	1,153	−18
Taiwan	2,323	−109	960	−23	1,057	−22
Other	614	(D)	177	−32	238	−33
Afghanistan	(D)	1	(D)	1	(D)	(*)
Brunei	338	−18	0	0	0	0
French Islands, Pacific	(D)	(*)	0	0	0	0
India	17	−18	17	−18	20	−17
Laos	5	(*)	5	(*)	5	(*)
Macau	0	0	0	0	3	(*)
Micronesia	0	0	0	0	−2	0
Pakistan	22	−2	17	(*)	17	(*)
Papua New Guinea	0	0	0	0	(D)	0
Sri Lanka	0	0	0	0	3	0
Thailand	216	−55	124	−11	176	−12
United Kingdom Islands, Pacific	2	(D)	(D)	−4	2	−4
Vanuatu	1	(*)	1	(*)	7	(*)
United States	3,367	298	.....	.....	.....	.....
Addenda:						
European Communities (12)	204,363	3,898	214,841	4,077	223,863	4,736
OPEC	11,624	−223	4,699	−103	3,922	−162

NOTE.—See "Notes to the Tables."

Table 6.—Selected Financial and Operating Data of U.S. Affiliates, by Country and Industry of Foreign Parent

	Millions of dollars					Thousands of employees
	Total assets	Gross property, plant, and equipment	Sales	Net income	Employee compensation	
	(1)	(2)	(3)	(4)	(5)	(6)
All countries, all industries	**2,998,593**	**670,914**	**1,333,867**	**–20,575**	**188,541**	**4,843.3**
By country						
Canada	301,144	99,415	123,114	–5,711	22,688	622.1
Europe	**1,419,626**	**360,456**	**698,133**	**–6,957**	**114,975**	**3,010.2**
Austria	7,477	333	(D)	(D)	198	4.2
Belgium	17,095	8,520	13,961	184	1,571	75.8
Denmark	6,276	1,758	3,664	–96	1,019	43.5
Finland	8,834	2,236	(D)	(D)	1,065	25.3
France	259,606	42,162	81,907	–674	12,725	299.5
Germany	163,862	53,172	119,741	–844	20,930	519.9
Ireland	(D)	2,021	(D)	(D)	(D)	J
Italy	55,062	2,833	8,460	–28	795	18.0
Liechtenstein	520	429	207	–92	60	1.9
Luxembourg	(D)	1,877	(D)	(D)	526	14.5
Netherlands	288,344	95,000	146,690	–1,681	22,070	605.1
Norway	(D)	1,382	(D)	(D)	(D)	I
Spain	54,460	1,664	4,723	466	646	20.1
Sweden	45,284	9,264	30,208	–195	5,834	152.5
Switzerland	144,246	24,918	71,353	–436	13,016	294.0
United Kingdom	338,078	112,664	196,473	–3,211	33,354	905.7
Other	5,557	224	1,212	–53	112	3.0
Latin America and Other Western Hemisphere	**172,864**	**43,984**	**66,566**	**190**	**12,571**	**317.7**
South and Central America	114,773	17,094	26,901	2,392	3,748	86.6
Brazil	5,380	(D)	1,511	27	77	1.5
Mexico	11,447	1,756	4,934	33	822	24.3
Panama	(D)	(D)	(D)	(D)	(D)	L
Venezuela	4,926	2,632	2,593	268	237	8.5
Other	(D)	82	(D)	(D)	(D)	G
Other Western Hemisphere	58,091	26,890	39,665	–2,202	8,822	231.2
Bahamas	3,584	863	1,479	–22	125	3.3
Bermuda	(D)	(D)	(D)	(D)	(D)	L
Netherlands Antilles	13,931	9,464	9,656	–487	2,089	68.2
U.K. Islands, Caribbean	28,785	11,097	18,144	–1,661	4,370	105.6
Other	(D)	(D)	(D)	(D)	(D)	G
Africa	(D)	**3,370**	(D)	(D)	**144**	**4.3**
South Africa	1	1	(D)	(*)	0	0
Other	(D)	3,369	(D)	(D)	144	4.3
Middle East	(D)	**9,595**	(D)	(D)	**814**	**17.4**
Israel	(D)	394	(D)	–89	288	5.6
Kuwait	6,168	(D)	(D)	(D)	(D)	I
Lebanon	27	13	23	–2	5	.1
Saudi Arabia	(D)	(D)	(D)	(D)	(D)	I
United Arab Emirates	222	212	28	–29	6	.2
Other	3,522	(D)	223	–10	23	.6
Asia and Pacific	**1,071,730**	**154,093**	**430,766**	**–7,718**	**37,350**	**871.6**
Australia	45,696	12,630	21,961	–219	3,853	84.1
China	(D)	(D)	(D)	(D)	(D)	G
Hong Kong	6,594	(D)	(D)	(D)	478	17.7
Indonesia	2,225	132	468	–57	51	G
Japan	976,444	133,084	386,674	–6,778	31,727	736.7
Korea, Republic of	18,055	2,101	10,468	–324	513	11.7
Malaysia	874	4	86	–8	4	.1
New Zealand	(D)	197	1,860	–63	295	6.8
Philippines	708	77	109	–8	20	.6
Singapore	2,988	1,210	652	–92	87	2.7
Taiwan	9,311	1,586	1,853	–52	194	5.5
Other	2,951	123	533	–36	(D)	G
Addenda:						
European Communities (12)	1,208,324	321,750	584,563	–5,869	94,308	2,520.6
OPEC	21,602	11,667	15,555	19	796	22.1
By Industry						
Government and government-related entites	13,857	11,725	11,735	33	627	14.2
Individuals, estates, and trusts	27,433	17,698	21,043	–33	3,481	138.9
Petroleum	67,744	64,036	55,135	75	4,167	68.7
Agriculture	2,100	1,153	3,221	–67	371	10.7
Mining	22,371	18,814	15,132	–619	2,788	57.5
Construction	17,763	10,252	13,440	–1,275	2,997	67.7
Manufacturing	402,187	191,945	427,130	–3,603	72,637	1,626.8
Transportation, communication, and public utilities	29,971	13,997	19,351	–2,786	5,260	128.2
Wholesale and retail trade	83,886	27,788	204,954	–1,942	12,387	529.8
Depository institutions	1,296,990	12,358	131,422	–171	7,588	135.8
Other finance and insurance	936,524	229,882	397,420	–5,735	66,859	1,730.9
Real estate	64,890	53,660	11,777	–3,564	1,334	46.3
Services	32,878	17,606	22,106	–888	8,045	287.8

NOTE.—See "Notes to the Tables."

Industry classification

Each U.S. affiliate was classified by industry on the basis of its sales (or of its total income, for holding companies) in a three-step procedure. First, a given U.S. affiliate was classified in the major industry group that accounted for the largest percentage of its sales.[8]

Second, within the major industry group, the U.S. affiliate was classified in the two-digit industry in which its sales were largest; a two-digit industry was defined to consist of all three-digit subindustries that have the same first two digits in their three-digit code. Third, within its two-digit industry, the U.S. affiliate was classified in the three-digit subindustry in which its sales were largest. This procedure ensured that the U.S. affiliate was not assigned to either a three-digit subindustry outside either its major industry or its two-digit industry.[9]

A list and a description of the codes used by BEA to classify the data from the 1992 benchmark survey are found in the *Guide to Industry and Foreign Trade Classifications for International Surveys* (see appendix B). These classifications are adapted from those in the *Standard Industrial Classification Manual 1987*. The direct investment data are collected at the enterprise level, and each enterprise is classified in a single industry on the basis of its major activity. In contrast, the Standard Industrial Classification (SIC) is designed for classifying individual establishments (or plants) within an enterprise. Because many direct investment enterprises are active in several industries, it is not meaningful to classify all their data in a single industry if that industry is defined too narrowly. Accordingly, BEA has limited the detail in which it classifies U.S. affiliates by industry to a total of about 135 industries. More detailed establishment-level data are available from the BEA-Census Bureau link project described earlier; these data are classified by industry at the four-digit SIC level.

To conform to the SIC, petroleum is not listed as a major industry group in the Guide. Instead, the three-digit subindustries within petroleum are spread among the other major industries: Crude petroleum extraction is in mining, petroleum refining is in manufacturing, gasoline service stations are in retail trade, and so on. However, for direct investment classification and publication purposes, these various subindustries are grouped together in the major industry group petroleum.

Beginning with the 1992 benchmark survey and reflecting a change in the 1987 SIC, savings institutions and credit unions are included in the industry "depository institutions," which also includes banks. Thus, the data for savings institutions and credit unions appear in the tables for "bank affiliates" rather than in those for "nonbank affiliates." Previously, these entities were classified as "nonbank affiliates," in the industry "finance, except banking."

Table A–1 presents selected financial and operating data for U.S. affiliates classified by industry of affiliate; each three-digit subindustry is shown separately and is grouped by the major industry to which it belongs. Primarily because of confidentiality requirements, many of these three-digit subindustries are not shown in the other tables in this publication. However, each industry included but not identified in an industry group shown in the other tables may be ascertained by referring to table A–1.

Each U.S. affiliate was classified in a single industry, even though many affiliates had activities in more than one industry. As a result, the distribution of data by industry of affiliate differs from the distribution that would result if each of the affiliates' activities were classified by industry. Classification by activity was obtained in the benchmark survey for two key items—sales and employment. Each U.S. affiliate was required to distribute its sales and its employment among the three-digit subindustries in which it had sales.[10] In table A–8 of part II, nonbank

8. The major industry groups used were agriculture, forestry and fishing; mining; petroleum; construction; manufacturing; transportation, communication, and public utilities; wholesale trade; retail trade; finance, insurance, and real estate; and services.

9. The following example illustrates the three-stage classification procedure. Suppose an affiliate's sales were distributed as follows:

Industry code	Sales (Percentages of total)		
351	5		
352	10	30	
353	15		55
367	25		
508	45		

where industry codes 351, 352, 353, and 367 are in manufacturing and code 508 is in wholesale trade. Because 55 percent of the affiliate's sales were in manufacturing and only 45 percent were in wholesale trade, the affiliate's major industry is manufacturing. Because 30 percent of its sales within manufacturing are in two-digit industry 35 (nonelectrical machinery)—that is, the sum of the percentages in 351, 352, and 353 is 30 percent—and 25 percent are in two-digit industry 36 (electrical machinery), the affiliate's two-digit industry is 35. Finally, because its sales within industry 35 were largest in subindustry 353, the affiliate's three-digit subindustry is 353. Thus, because of the three-stage classification procedure, the affiliate was assigned to subindustry 353, even though its sales in that subindustry were smaller than its sales in either subindustries 508 or 367.

10. Specifically, large U.S. affiliates (those with total assets, sales, or net income greater than $50 million) had to specify their sales and employment in the eight industries in which their sales were largest; other affiliates had to specify their sales and employment in the three industries in which their sales were largest. Unspecified sales and employment are shown in the "unspecified" row or column in tables A–8, E–7 to E–9, and G–10 to G–12.

U.S. affiliates' sales and employment by industry of sales are compared with their sales and employment by industry of affiliate. (Data by industry of sales cross-classified by industry of affiliate are shown in table E–7 for sales and table G–10 for employment.) Because an affiliate that has an establishment in an industry usually also has sales in that industry, the distribution of affiliate data by industry of sales roughly approximates the distribution that would result if the data were reported and classified by industry of establishment. However, if two establishments of an affiliate are in different industries and one of the establishments provides all of its output to the other one, the affiliate will not have sales in the industry of the first establishment. (For example, if an affiliate operates both a metal mine and a metal manufacturing plant and if the entire output of the mine is used by the manufacturing plant, all of the affiliate's sales will be in metal manufacturing, and none will be in metal mining. When the mining employees are distributed by industry of sales, they are classified in manufacturing. In contrast, when they are distributed by industry of establishment, they are classified in mining.)

The UBO and foreign parent of each affiliate were also classified by industry, but the categories used were much less detailed than those used for affiliates. In the benchmark survey, an affiliate had to assign its parent and UBO to 1 of 28 broad categories.[11] Beginning with the 1992 benchmark survey, UBOs in manufacturing are classified into 12 manufacturing subindustries; in the surveys for previous years this breakdown was not obtained.

A distribution of sales by industry was not obtained for UBO's or foreign parents. For affiliates that had more than one UBO or foreign parent, each UBO or foreign parent was classified. In the tables that show data disaggregated by industry of UBO or foreign parent, all data for these affiliates are shown in the industry of the UBO or foreign parent with the largest ownership share.

The industry classification of a foreign parent may differ from that of a UBO. The foreign parent consists *only* of the first foreign person in the affiliate's ownership chain, and its industry of classification reflects only the activities of that first foreign person. In contrast, the UBO's industry reflects its fully consolidated worldwide activities, including the activities of both U.S. and foreign entities in the ownership chain below it.

11. See the list at the bottom of page 13 of the benchmark survey form BE–12(LF), in appendix A.

Country classification

In the benchmark survey, the UBO and the foreign parent of a U.S. affiliate were each classified by country. For affiliates that had more than one UBO or foreign parent, each UBO or foreign parent was classified; for most of the tables in this publication, the data for a given affiliate were then classified by the country of the UBO or the foreign parent that had the largest ownership share in the affiliate.

Table A–2 presents selected financial and operating data by country of UBO; by geographic area, it shows each country in which a UBO was located in 1992. (A table A–2 is presented for all affiliates, for nonbank affiliates, and for bank affiliates.) Table 5 in this methodology shows data for all affiliates on the direct investment position and on direct investment income by each country in which a UBO was located. Primarily because of confidentiality requirements, many countries could not be shown in the other tables in this publication. However, each country included but not identified in a geographic group shown in the other tables may be ascertained by referring to table A–2 or table 5.

Only three tables—tables 5 and 6 in this methodology and table A–7 in part II—show data by country of foreign parent. Table 5 shows the direct investment position and direct investment income by country of foreign parent and by country of each member of the foreign parent group, in addition to by country of UBO. Table 6 shows selected financial and operating data for all affiliates, classified by country of foreign parent. Table A–7 compares a few key data items classified by country of UBO and by country of foreign parent for nonbank affiliates. The data by country of foreign parent in tables A–7 and 6 are comparable with the data classified by country of foreign parent in the 1987, 1980, and 1974 benchmark survey publications.[12]

Estimation and General Validity of the Data

Nonbank affiliates with total assets, sales, or net income greater than $1 million were required to report in the benchmark survey. Depending on

12. See *Foreign Direct Investment in the United States: 1987 Benchmark Survey, Final Results; Foreign Direct Investment in the United States, 1980*; and *Foreign Direct Investment in the United States, Volume 2: Report of the Secretary of Commerce: Benchmark Survey, 1974*. (Summary data from the 1980 benchmark survey were subsequently republished, with minor corrections, in *Foreign Direct Investment in the United States: Operations of U.S. Affiliates, 1977–80*, but that publication does not contain data classified by country of foreign parent.)

their size, they had to report on either a long form or a short form.[13] For the affiliates that reported on the short form, BEA estimated the items that appeared only on the long form to present financial and operating data in the same detail for all nonbank affiliates. Estimates were also made for some affiliates that failed to report in the benchmark survey but for which data could be obtained from other surveys.

The long form (BE–12(LF))—which was filed by nonbank affiliates with total assets, sales, or net income (or loss) greater than $50 million—collected detailed data. The short form (BE–12(SF))—which was filed by nonbank affiliates with total assets, sales, and net income (or loss) of $50 million or less—collected most balance of payments data items but only selected financial and operating data items. For a given short-form affiliate, long-form items were generally estimated based on relationships among data items for the most comparable panel of long-form affiliates that could be constructed; specifically, the panel comprised affiliates that had total assets of between $50 million and $250 million and that were in the same industry group as the affiliate whose data were being estimated.

A total of 8,442 nonbank affiliates filed short forms (table 7). Although these affiliates accounted for 70 percent of all nonbank affiliates, they accounted for only a small portion of the nonbank universe in terms of value—4 percent of total assets, 5 percent of sales, and 7 percent of employment.

The largest number of short-form affiliates were in real estate, and their shares of the universe in this industry in terms of value were disproportionately high. In real estate, short-form affiliates accounted for 20 percent of total assets, 19 percent of sales, and 14 percent of employment.

BEA also made estimates of the data for some nonbank affiliates that did not file a benchmark survey report even though they met the criteria for filing. For the 762 affiliates covered by these estimates, BEA had a report in another direct investment survey that could serve as a basis for the estimation. These affiliates, most of which were small, accounted for only a minor portion of the nonbank universe in terms of value—1 percent of assets and sales and 2 percent of employment (table 7). The estimation of data for these affiliates ensured that the 1992 data were as complete as possible.

All data reported by U.S. affiliates had to pass a number of computerized edit checks. Where possible, the data for an affiliate were reviewed for their consistency with related data for the affiliate from other parts of the report form, with data provided in related report forms, with comparable data reported by other affiliates, and with comparable data from outside sources. As a result of this edit and review process, a number of changes to the reported data were made, usually after consulting with the reporting affiliate. In some cases, usually involving small affiliates, estimates based on industry averages or other information were substituted for missing or erroneously reported data.

For some items—such as those pertaining to trade by product and country of origin or destination and employment by industry of sales or by State—affiliates had difficulty in supplying the required information because the data were not easily accessible or were unavailable from their standard accounting records. In these cases, affiliates often made estimates, the quality of which is difficult to assess.

13. These two forms are reprinted in appendix A. Bank affiliates reported on a third form (BE–12 Bank).

Table 7.—Selected Data for U.S. Affiliates That Filed Reports Compared With U.S. Affiliates for Which Reports Were Estimated

	Number of affiliates	Millions of dollars		Thousands of employees
		Total assets	Sales	
Affiliates that were required to file a report	12,672	2,998,593	1,333,867	4,843.3
Banks	534	1,173,375	101,895	127.9
Nonbanks	12,138	1,825,219	1,231,972	4,715.4
Nonbank affiliates that actually filed reports	11,376	1,804,328	1,217,405	4,639.6
Affiliates that filed long forms	2,934	1,730,151	1,161,894	4,324.6
Affiliates that filed short forms	8,442	74,177	55,512	315.1
Nonbank affiliates that failed to file reports and for which reports were estimated	762	20,890	14,567	75.8
	Percent			
Addenda:				
Nonbank affiliates that filed short forms as a percent of all nonbank affiliates	69.6	4.1	4.5	6.7
Nonbank affiliates that failed to file reports and for which reports were estimated as a percent of all nonbank affiliates	6.3	1.1	1.2	1.6

NOTE.—No reports were estimated for bank affiliates.

Number of U.S. Affiliates

Tables A–1 and A–2 in part II show the number of nonbank affiliates that is comparable with

the number shown in previous annual survey publications; the same tables in part I show the number of all affiliates, both bank affiliates and nonbank affiliates.

The data on number of affiliates should be used cautiously because, with the exception of those shown in tables 2 and 3, they exclude very small affiliates that were exempt from filing a benchmark survey report. In addition, some affiliates that were required to file a report did not do so. Because of limited resources, BEA's efforts to ensure compliance with reporting requirements focused mainly on large affiliates. As a result, some small affiliates that were not aware of the reporting requirements and that were not on BEA's mailing list may not have filed reports. Although the omission of these affiliates from the benchmark survey results probably has not significantly affected the aggregate value of the various data items collected, it could have caused an unknown, but possibly significant, understatement of the number of affiliates.

Even an exact count of U.S. affiliates would be difficult to interpret because each report covers a fully consolidated U.S. business enterprise, which may consist of several companies. The number of fully consolidated enterprises varies according to the degree of consolidation used and the differences in the organizational structure of the company. This publication gives, in addition to the number of affiliates, the number of companies consolidated in the affiliates' reports (see tables A–1 and A–2). Because the report for one affiliate may cover many companies, the number of companies consolidated is substantially higher than the number of affiliates—39,882 compared with 12,672. For nonbank affiliates, the comparable figures are 38,646 and 12,138. Establishment data for 1991—the most recent year for which such data are available, indicate that the number of establishments of U.S. affiliates is, as would be expected, higher than either the number of affiliates or the number of companies consolidated. In 1991, there were 12,741 manufacturing establishments, compared with 2,563 manufacturing affiliates consisting of 9,330 consolidated companies.[14]

This publication includes the number of nonbank affiliates by State in the following three categories: Affiliates with either employment or property, plant, and equipment (table A–9); affiliates with employment (table G–18); and affiliates with property, plant, and equipment (tables D–20 and D–21). The number for a given State may differ among these tables because some affiliates have both employment and property, plant, and equipment in the State, some have only employment, and some have only property, plant, and equipment.

In these tables, an affiliate is counted even if it only has a few employees in the State and even if the value of its property, plant, and equipment is small. For example, sales offices often account for a substantial portion of the total count for a State. These offices often have fewer than 10 employees and only a nominal amount of property, plant, and equipment. The significance of such small operations in a particular State can be ascertained from tables D–20 and G–18, which show the number of affiliates with property, plant, and equipment and the number with employment, each disaggregated by size.

Financial and Operating Data

Financial and operating data focus on the overall operations of U.S. affiliates. Among the items covered by these data are the following: Balance sheets and income statements; gross product; sales of goods and services; external financial position; taxes; property, plant, and equipment; employment and employee compensation; U.S. merchandise trade; research and development activities; and U.S. land owned and leased by affiliates. Only a few of these items were obtained for bank affiliates; consequently, most of the tables that present financial and operating data cover nonbank U.S. affiliates only. Financial and operating data for bank affiliates are shown in tables 4 and 7 of this methodology, in table A–1 in part I, and in all of the tables in part III.

The financial and operating data for U.S. affiliates are not adjusted for the ownership share of the foreign direct investors. Thus, for example, the employment data include all employees of each affiliate, including affiliates in which the foreign investor's ownership share is less than 100 percent. To help address issues for which control is relevant, a few tables—those in group J—that cover only those nonbank U.S. affiliates that are majority-owned by foreign direct investors have been included in this publication.

Most of the concepts and definitions used in reporting the financial and operating data can be found on the BE–12 forms or in the *Instruction Booklet* to the forms in appendix A. The following discussion focuses on the concepts, definitions,

14. See Bureau of Economic Analysis and Bureau of the Census, *Foreign Direct Investment in the United States: Establishment Data for Manufacturing, 1991* (Washington, DC: U.S. Government Printing Office, 1994).

and statistical issues that require further explanation or that are not covered in either the forms or the *Instruction Booklet.*

Balance sheets and income statements

U.S. affiliates' balance sheets and income statements are required to be filed according to U.S. generally accepted accounting principles (GAAP), and any major changes in GAAP will affect the affiliate data. As a result of recent changes in GAAP regarding deferred income taxes and postretirement benefits, affiliates have made large one-time adjustments to their earnings; these adjustments substantially reduced their net income in 1992 from what it otherwise would have been.

For most affiliates, the income statement includes all types of income, both ordinary and extraordinary. However, for some affiliates, such as those in insurance, GAAP requires certain unrealized gains and losses to be carried directly to owners' equity in the balance sheet rather than to be recorded on the income statement.

Under GAAP, depreciation and depletion charges are used to distribute the cost of an asset over that asset's estimated useful life. For example, affiliates engaged in extracting natural resources report net income after the deduction of book depletion—that is, those expenses representing the periodic chargeoff of the actual cost of natural resources. Tax or percentage depletion is not deducted.

Gross product

Gross product is an economic accounting measure of the production of goods and services. A U.S. affiliate's gross product measures the value added by the affiliate and, thus, its contribution to U.S. gross domestic product (GDP).

For a U.S. affiliate, as for any firm, gross product can be measured as its gross output (sales or receipts and other operating income, plus inventory change) less its intermediate inputs (purchased goods and services). Alternatively, it can be measured as the sum of costs incurred (except for intermediate inputs), and profits earned, in production. The costs fall into four major categories: Employee compensation, net interest paid, indirect business taxes, and the capital consumption allowance.[15] The estimates presented in this publication were calculated as the sum of costs and profits.

Estimates of affiliate gross product are generally preferred to sales or other measures used to assess the economic impact of affiliates on the entire U.S. economy as well as on individual industries. Gross product permits more focused analysis of the impact of affiliates because it measures only the affiliates' own production, whereas sales do not distinguish between the affiliates' own production and production originating elsewhere. In addition, gross product estimates measure the value added to the economy by affiliates during a specific period. In contrast, some of the sales in a given period may represent production from earlier periods.

Sales of goods and services

For nonbank affiliates, the 1992 benchmark survey collected affiliates' sales (or gross operating revenues) disaggregated into goods, services, and investment income. Services were further disaggregated into sales to U.S. persons, sales to members of the foreign parent group, sales to foreign affiliates, and sales to other foreigners. For purposes of distributing sales into goods, services, and investment income, "services" are defined as activities characteristic of the following industries: The "services" division of the Standard Industrial Classification and BEA's International Surveys Industry Classification system; petroleum services; finance (except banking); insurance; real estate; agricultural services; mining services; and transportation, communication, and public utilities. An affiliate need not be classified in one of these industries to have sales of services.

Information on investment income was collected primarily to ensure that, if factor income was included in total sales (or gross operating revenues), it would not be included in sales of services. In finance and insurance, affiliates include investment income in sales because it is generated by a primary activity of the affiliate. In most other industries, affiliates consider investment income an incidental revenue source and

15. In the U.S. national income and product accounts (NIPA's), two measures of depreciation, or capital consumption, are used—the *capital consumption allowance* and *consumption of fixed capital.* The capital consumption allowance (CCA) consists of depreciation charges, which are based largely on tax returns, and allowances for accidental damage to fixed capital. Consumption of fixed capital consists of CCA plus an adjustment to place depreciation on an economic basis that uses economic service lives, straight-line depreciation, and replacement-cost valuation.

For U.S. affiliates, the only measure of capital consumption available from BEA's survey data is the book value of depreciation, reported on a basis consistent with GAAP. Because this measure does not provide for replacement-cost valuation, it is termed the "capital consumption allowance" in this publication (see table F–1), although it reflects some of the adjustments that determine the difference between the NIPA measures of CCA and consumption of fixed capital.

The basis used to measure depreciation has no effect on the value of total gross product; any differences between the measures of depreciation, which is a cost of production, have equal and offsetting effects on the profit-type-return component.

include it in the income statement in an "other income" category rather than in sales.

Employment and employee compensation

In the benchmark survey, affiliates were requested to report employment as the number of full-time and part-time employees on the payroll at the end of fiscal year 1992. However, a count taken during the year was accepted if it was a reasonable proxy for the end-of-year number. In addition, if employment at the end of the year was unusually high or low because of temporary factors, such as seasonal variations or a strike, a number reflecting normal operations was requested.

Employment is classified both by industry of affiliate and by industry of sales. The classification by industry of sales is based on information supplied by each affiliate on employment in the three-digit industries in which it had sales.

Data on employment, employee compensation, and wages and salaries covering affiliates' total U.S. operations were collected. For nonbank affiliates, data on their total employment and on their manufacturing employment were also collected by State. Manufacturing employees in a given State comprise employees on the payroll of manufacturing plants in the State and employees in central administrative offices and auxiliary units that primarily serve these plants. These data are shown in table G–13.

For manufacturing, three measures of employment are available from the benchmark survey. The totals of employment under the three measures differ. *Employment by manufacturing affiliates* (tables G–1, G–3 to G–5, G–7, and G–10) consists of employment by affiliates *classified in manufacturing.* It includes all employees of affiliates whose primary industry is manufacturing, even though the affiliates may have activities, and thus employees, in other industries; it excludes manufacturing employees of affiliates not classified in manufacturing. *Nonbank affiliates' manufacturing employment* (table G–13) consists of employees on the payroll of manufacturing plants of nonbank affiliates. It includes employees of manufacturing plants of nonbank affiliates that are not classified in manufacturing, and it excludes employees of nonmanufacturing plants of affiliates that are classified in manufacturing. For comparability with all-U.S. data, this measure is defined to include petroleum refining employees. (These employees are excluded from "employment by manufacturing affiliates" because, under that measure, they are considered employees of affiliates classified in petroleum, not manufacturing). *Manufacturing employment when employees are disaggregated by industry of sales* (tables G–10 to G–12) consists of employment of affiliates in each three-digit manufacturing industry in which they had sales. Unlike nonbank affiliates' manufacturing employment, it may include some nonmanufacturing employees,[16] but it excludes petroleum refining employees.

The manufacturing employment data in table G–13 give a better indication of the number of manufacturing employees in a State than the data in table G–7, which shows affiliate employment in each State classified by industry of affiliate. The manufacturing employees shown in table G–13 are those actually engaged in manufacturing in the State regardless of the industry classification of the affiliate. In table G–7, in contrast, all employees of a U.S. affiliate in the State are shown in the single industry in which, based on its total U.S. operations, the affiliate is classified, even if some of the employees are in other industries.

Although the data on employment and employee compensation from the benchmark survey can be used to compute compensation per employee and wages and salaries per employee, the rates so computed may not accurately reflect the compensation rates normally paid by affiliates (and, thus, are not shown in this publication). The computed rates may be distorted by the inclusion of part-time employment, because a part-time employee is counted the same as a full-time employee, or by data covering only part of the year—for example, data for an affiliate that was newly established during the year.[17]

Property, plant, and equipment

In the benchmark survey, U.S. affiliates were required to disaggregate the gross book value of their property, plant, and equipment (PPE) by use, both for their total U.S. operations and for their operations in each State. A breakdown was obtained for three broad categories—PPE used for manufacturing, for commercial property, and for all other purposes. Manufacturing PPE consists of PPE used primarily for manufacturing, including petroleum refining.[18] Commercial property consists of the gross book value of all commer-

16. See the discussion of affiliate sales and employment classified by industry of sales in the section "Industry classification."

17. Employee compensation rates are better measured by hourly wage rates, which do not suffer from these shortcomings and which are available from the BEA-Census Bureau link data (see footnote 3).

18. Manufacturing PPE differs conceptually from the PPE of affiliates classified in manufacturing, because the PPE of manufacturing affiliates includes the nonmanufacturing PPE associated with their secondary, nonmanufacturing activities and excludes manufacturing PPE of affiliates classified in nonmanufacturing industries.

cial buildings and associated land owned by the affiliate. Commercial buildings include apartment buildings, office buildings, hotels, motels, and buildings used for wholesale, retail, and services trades (such as shopping centers, recreational facilities, department stores, bank buildings, restaurants, public garages, and automobile service stations). PPE used for all other purposes includes PPE used for agriculture; mining; petroleum and natural gas extraction; transportation, communication, and public utilities; and equipment used in commercial buildings.

U.S. merchandise trade

The concepts and definitions underlying the data collected in the benchmark survey on U.S. merchandise trade of U.S. affiliates are nearly identical to those used for the data on total U.S. merchandise trade compiled by the Census Bureau. The trade data were particularly difficult for affiliates to report, but BEA's review of the reported data indicates that most of the data conform well to Census Bureau concepts and definitions.

However, because of certain reporting problems, the affiliate trade data are not completely comparable with the Census Bureau trade data. In the benchmark survey, U.S. merchandise trade data had to be reported on a "shipped" basis—that is, on the basis of when, where, and to (or by) whom the goods were shipped—in order for them to be comparable with official U.S. trade data. However, most affiliates keep their books on a "charged" basis—that is, on the basis of when, where, and to (or by) whom the goods were charged. Although the two bases are usually the same, differences between them can be substantial. For example, if a U.S. affiliate buys goods from country A and sells them to country B and if the goods are shipped directly from country A to country B, the affiliate's books would show a purchase from country A and a sale to country B. If the affiliate's trade data were reported on a charged basis, the purchase and sale would have appeared as a U.S. import and U.S. export, respectively. However, the goods never entered or left the United States, and on a shipped basis, they are not included in either U.S. imports or U.S. exports.

On the basis of its review, BEA believes most affiliates reported on a shipped, rather than on a charged, basis. However, some affiliates had difficulty obtaining data on a shipped basis, which usually required using shipping department invoices rather than accounting records. If BEA determined that the data were reported on a charged basis and that these data were likely to differ materially from data reported on a shipped basis, it required revised reports to be filed. However, some cases of erroneous reporting were probably not identified.

In addition, data on trade by U.S. affiliates collected by BEA are on a fiscal year basis, whereas those on total U.S. merchandise trade collected by the Census Bureau are on a calendar year basis. This difference could be a significant source of noncomparability between the two sets of data, but the degree of such noncomparability is unknown.

Additional differences between the BEA trade data and those of the Census Bureau may have resulted simply because the data come from different sources: The BEA data are based on company records, whereas those of the Census Bureau are compiled from export and import documents filed by the shipper with the U.S. Customs Service on individual transactions. The timing, valuation, origin or destination, shipper, and product involved in a given export or import transaction may be recorded differently on company records than on customs export and import documents.

In the 1992 benchmark survey, as in the 1980 benchmark survey, imports shipped to affiliates were disaggregated by intended use into three categories: Capital equipment, goods for resale without further manufacture, and goods for further manufacture. However, in the 1987 benchmark survey, capital equipment and goods for further manufacture were grouped in "other." In the future, data on goods for further manufacture will be collected annually.

Research and development

The 1992 benchmark survey collected data on two technology-related items—research and development (R&D) expenditures and the number of employees engaged in R&D-related activities.

The data on R&D expenditures were collected on two bases: R&D *funded* by the affiliate (whether the R&D was performed internally or by others) and R&D *performed* by the affiliate (whether the R&D was for its own use or for use by others). The first basis views R&D from the perspective of costs of production and can be used as an indicator of affiliates' use of technology. It is consistent with guidelines of the Financial Accounting Standards Board for accounting for the costs of R&D, and it is the only R&D measure collected on recent benchmark sur-

veys and on the annual surveys. The performance measure can be used to gauge the technological capabilities of affiliates. R&D data on this basis have been collected for U.S. affiliates only once before, on the benchmark survey for 1974.

Data on the number of employees associated with research and development activities were last collected in the 1980 benchmark survey. However, they will now be collected annually, beginning with the survey for 1993.

Direct Investment Position and Balance of Payments Data

Direct investment position and direct investment balance of payments data measure the U.S. affiliate's transactions and positions with its foreign parent and other members of its foreign parent group. In contrast, affiliate financial and operating data provide measures of the U.S affiliate's overall operations, including its transactions and positions with persons other than members of its foreign parent group. For example, the direct investment position in an affiliate is equal to its foreign parent group's equity in, and net outstanding loans to, its U.S. affiliate; a U.S. affiliate's total assets, in contrast, are equal to the sum of (1) total owners' equity in the affiliate held both by members of the foreign parent group and by all other persons and (2) total liabilities owed by the affiliate both to members of the foreign parent group and to all other persons.[19]

In the benchmark survey, data for the position and balance of payments items were obtained in parts III and IV of the long form and in part III of the short form (see appendix A). For foreign direct investment in the United States, the following major items appear in the U.S. balance of payments accounts:

- Direct investment capital flows,
- Direct investment income,
- Direct investment royalties and license fees, and
- Other direct investment services.

Two adjustments are made to the balance of payments data before the data are entered into the U.S. international accounts. First, two of these items—income and capital flows—are adjusted to reflect current-period prices.[20]

Second, the data from the benchmark survey are adjusted from a fiscal year basis to a calendar year basis. As discussed in the section on fiscal year reporting, the direct investment position and balance of payments data collected in the 1992 benchmark survey are on a fiscal year basis. Thus, before the data are incorporated into the U.S. balance of payments accounts and the annual series on the position, which are on a calendar year basis, they must be adjusted from a fiscal year basis to a calendar year basis.

The adjusted data for 1992 will be extrapolated forward to derive universe estimates for calendar years after 1992, based on sample data collected in BEA's quarterly surveys for those years. In addition, the benchmark survey data will be used in revising previously published data for 1988–91, to incorporate information affecting those years that was obtained in the 1992 benchmark survey (for example, foreign direct investments that were made between 1988 and 1991 but that were not known by, or reported to, BEA until the 1992 benchmark survey).

Foreign direct investment position in the United States

The foreign direct investment position in the United States at historical cost is equal to the net book value of the foreign parent groups' equity in, and net outstanding loans to, their U.S. affiliates. The position may be viewed as the foreign parent groups' contributions to the total assets of their U.S. affiliates or as financing provided in the form of equity or debt by foreign parent groups to U.S. affiliates.

The direct investment position data presented in this publication are valued at historical cost and are not adjusted to current value. Thus, they largely reflect prices at the time of investment rather than prices of the current period. Because historical cost is the basis used for valuation in company accounting records in the United States, it is the only basis on which companies can report data in BEA's direct investment surveys. It is also the only basis on which detailed estimates of the

19. To illustrate, suppose that an affiliate is owned 80 percent by its foreign parent and that the affiliate has total owners' equity of $50 million and total liabilities of $100 million, of which $20 million is owed to the parent. In this case, the affiliate's total assets would be $150 million (total owners' equity of $50 million plus total liabilities of $100 million), and the parents' position in the affiliate would be $60 million (80 percent of the $50 million of owners' equity plus the $20 million of intercompany debt).

20. The adjustments are made only at the global level; the data required to make them for countries and industries are not available.

The adjustments are accomplished in three steps. First, a capital consumption adjustment is made to convert depreciation charges from a historical-cost basis to a current- (or replacement-) cost basis. Second, earnings are raised by the amount of charges for the depletion of natural resources, because these charges are not treated as production costs in the NIPA's. Third, expenses for mineral exploration and development are reallocated across periods to ensure that they are written off over their economic lives rather than all at once.

position are available by country, by industry, and by account. However, BEA does provide aggregate estimates of the position valued in current-period prices.[21]

Direct equity positions in U.S. affiliates are, by definition, held only by foreign parents. Foreign parents may also have direct debt positions with U.S. affiliates. In contrast, other members of the foreign parent groups can have only direct debt—not equity—positions in affiliates. (Any equity transactions between affiliates and nonparent members of their foreign parent groups are recorded as portfolio investment rather than as direct investment.)

Foreign parents' equity in incorporated affiliates can be broken down into foreign parents' holdings of capital stock in, and other capital contributions to, their U.S. affiliates and foreign parents' equity in the retained earnings of their U.S. affiliates. Capital stock includes all the stock of the affiliates, whether the stock is common or preferred stock or voting or nonvoting stock. Other capital contributions by foreign parents, also referred to as the "foreign parents' equity in additional paid-in capital," consist of capital, invested or contributed, that is not included in capital stock, such as the amount paid for stock in excess of its par or stated value, the capitalization of intercompany accounts (conversions of debt to equity) that do not result in the issuance of capital stock, and donations. Foreign parents' equity in retained earnings is the foreign parents' shares of the cumulative undistributed earnings of their incorporated U.S. affiliates.

Although some unincorporated affiliates could not disaggregate owners' equity by type, the data on foreign parents' equity in affiliates by type cover both incorporated and unincorporated affiliates. For unincorporated affiliates for which no breakdown of owners' equity by type was available, parents' total equity was included in "other" equity. The foreign parents' share in total owners' equity (not broken down by type) is shown for incorporated affiliates and for unincorporated affiliates in addenda to the tables.

Foreign parent groups' net outstanding loans to their U.S. affiliates, also referred to as "U.S. affiliates' net intercompany debt payables," consist of trade accounts and trade notes payable, other current liabilities, and long-term debt owed by the affiliates to their foreign parents or other members of their foreign parent groups, net of similar items due to the affiliates from their foreign parents or other members of their foreign parent groups.

Intercompany debt includes the value of capital leases and of operating leases of more than 1 year between U.S. affiliates and their foreign parent groups. The value of property so leased to a U.S. affiliate by its foreign parent group is included in affiliates' payables, and the value of property leased by a U.S. affiliate to the foreign parent group is included in affiliates' receivables. Under a capital lease, it is anticipated that title to the leased property will be transferred to the lessee at the termination of the lease—similar to an installment sale. Operating leases have a term significantly shorter than the expected useful life of the tangible property being leased, and the leased property is usually returned to the lessor at the termination of the lease. For capital leases, the value of the leased property is calculated according to GAAP; under GAAP, the lessee records either the present value of the future lease payments or the fair market value, whichever is lower, and the lessor records the sum of all future lease receipts. For operating leases of more than 1 year, the value is the original cost of the leased property less accumulated depreciation.

For U.S. affiliates that are depository institutions, the direct investment position is defined to include only their foreign parent groups' permanent equity and debt investment in them; similarly, the direct investment flows that enter the U.S. balance of payments accounts for these affiliates include only transactions related to such permanent investment. All other transactions and positions—mainly claims and liabilities arising from the parents' and affiliates' normal banking business—are excluded from the direct investment accounts and included with other banking claims and liabilities in the portfolio investment accounts.

A foreign parent and its U.S. affiliate may have a two-way relationship—each may have debt and equity investment in the other. Thus, a foreign parent may have investment in a U.S. affiliate that, in turn, has investment in the parent as a result of the affiliate's lending funds to, or acquiring voting securities or other equity interest in, the parent. In addition, the other members of the foreign parent group and a U.S. affiliate each may have debt investment in the other. In the intercompany debt portion of the position, affili-

21. In May 1991, BEA published, for the first time, position estimates measured at current cost and at market value for foreign direct investment in the United States (and for U.S. direct investment abroad) for 1982–89. These estimates are updated each June in an article on the U.S. international investment position in the SURVEY OF CURRENT BUSINESS. For a discussion of concepts and estimating procedures, see J. Steven Landefeld and Ann M. Lawson, "Valuation of the U.S. Net International Investment Position," SURVEY 71 (May 1991): 40–49.

ates' receivables from their foreign parent groups (reverse debt investment) are netted against affiliates' payables to their foreign parent groups.[22] Reverse equity investment by U.S. affiliates in their foreign parents is included in the U.S. portfolio investment position abroad if the affiliate's ownership is less than 10 percent or in the U.S. direct investment position abroad if the affiliate's ownership in its foreign parent is 10 percent or more.[23]

The direct investment position at the end of the year is equal to the position at the end of the previous year plus the change in the position during the year. The change during the year is the sum of direct investment capital flows (defined below) and valuation adjustments. Valuation adjustments are broadly defined to include all changes in the position other than capital flows. They primarily reflect differences between transactions values, which are used to record direct investment capital flows, and the book values on U.S. affiliates' books, which are used to record the position and, hence, changes in the position. For example, valuation adjustments include differences between the sale value and book value of affiliates that are sold by foreign parents and differences between the purchase price and the book value of affiliates that are acquired by foreign parents.[24] Valuation adjustments also include capital gains and losses and currency translation adjustments.

Direct investment capital inflows

Direct investment capital inflows consist of equity capital inflows, reinvested earnings, and intercompany debt inflows. This section first defines these components and then discusses coverage, measurement, and presentation of direct investment capital inflows.

Equity capital inflows.—Equity capital inflows are net increases in foreign parents' equity in their U.S. affiliates; equity capital outflows (decreases in equity) are netted against equity capital inflows (increases in equity) to derive the net inflow. Equity capital inflows exclude changes in equity that result from the reinvestment of earnings, which are recorded as a separate component of direct investment capital inflows.

Equity capital inflows to U.S. affiliates result from foreign parents' establishment of new U.S. affiliates, from their initial acquisition of 10-percent-or-more ownership interests in existing U.S. business enterprises, from their acquisition of additional ownership interests in existing U.S. affiliates, and from capital contributions to their U.S. affiliates.

Equity capital outflows result from liquidations of U.S. affiliates, from partial or total sales of ownership interests in U.S. affiliates, and from the return of capital contributions. Equity capital outflows also include liquidating dividends, which are a return of capital to foreign parents.

Equity capital inflows are recorded at transactions values. In most cases, transactions values may be obtained from the books of the U.S. affiliates. However, in some cases, such as when a foreign parent purchases or sells capital stock in the affiliate from or to an unaffiliated third party, the transactions value may be obtained only from the parent's books. In addition, transactions values on foreign parents' books reflect the actual cost of ownership interests in affiliates that are acquired or sold by foreign parents, including any premium or discount; such values may differ from the book values recorded on the affiliates' books.

Reinvested earnings.—Reinvested earnings of U.S. affiliates are earnings less distributed earnings. Earnings are foreign parents' shares in the net income of their U.S. affiliates after provision for U.S. income taxes. Earnings are from the books of the U.S. affiliate. A foreign parent's share in earnings is based on its directly held equity interest in the U.S. affiliate. The earnings and reinvested earnings estimates in this publication are not adjusted to reflect current-period prices because the source data needed to adjust the estimates by detailed country and industry are not available.

Earnings enter into direct investment income because they are income to the foreign parent, whether they are reinvested in the affiliate or remitted to the parent.[25] However, because reinvested earnings are not actually transferred to the foreign parent but increase the parent's investment in its affiliate, an entry that is equal to that

22. In the extremely rare case in which a U.S. affiliate and its foreign parent own 10 percent or more of each other, a U.S. affiliate's debt investment in the foreign parent group is not netted against the group's debt investment in it. In order to avoid double-counting, the foreign parent group's debt investment in the affiliate is included in the foreign direct investment position in the United States, and the affiliate's debt investment in the foreign parent group is included in the U.S. direct investment position abroad.

23. Before 1974, BEA netted all reverse equity investments. In some instances, this practice resulted in double- counting among the various accounts of the international investment position of the United States and in the capital accounts of the U.S. balance of payments. For this reason, the current treatment for reverse equity investments was adopted in 1974.

24. For the current-price estimates of the foreign direct investment position entered in the U.S. international investment position, the corresponding adjustments would reflect differences between the transactions values and estimated *current* values of the affiliates.

25. See in next section "Direct investment income."

made in the direct investment income account but that has the opposite sign is made in the direct investment capital account.

For incorporated U.S. affiliates, distributed earnings are dividends on common and preferred stock held by foreign parents. Distributions can be paid out of current or past earnings. Dividends exclude stock and liquidating dividends. Stock dividends are excluded because they are a capitalization of retained earnings—a substitution of one type of equity (capital stock) for another (retained earnings); they reduce the amount of retained earnings available for distribution but leave total owners' equity unchanged. Thus, stock dividends do not give rise to entries in the balance of payments accounts.[26] Liquidating dividends are excluded because they are a return of capital rather than a remittance of earnings (liquidating dividends are included instead as outflows in the direct investment equity capital account). For unincorporated affiliates, distributed earnings are earnings distributed to foreign parents out of current or past earnings.

Distributed earnings, like total earnings, are based on the books of the U.S. affiliate. Because they are on an accrual basis, they are reported as of the date that they are either paid to foreign parents or entered into intercompany accounts with the foreign parents. Distributed earnings are included whether they are paid in cash, through debt creation, or in kind.

Intercompany debt inflows.—Intercompany debt inflows consist of the increase in U.S. affiliates' net intercompany debt payables to their foreign parent groups during the year. The increase for a given period is derived by subtracting the net outstanding intercompany debt balance (that is, affiliate payables less affiliate receivables) at the end of the previous period from the net outstanding balance at the end of the current period.

When a member of a foreign parent group lends funds to a U.S. affiliate, the balance of the affiliate's payables (amounts owed) to the foreign parent group increases; subsequently, when the affiliate repays the principal owed to a member of the foreign parent group, the balance of the affiliate's payables to the group is reduced. Similarly, when a member of the foreign parent group borrows funds from a U.S. affiliate, the balance of the affiliate's receivables (amounts due) from the group increases; subsequently, when the member of the group repays the principal owed to the affiliate, the balance of the affiliate's receivables from the group is reduced.

Increases in affiliates' payables to, or reductions in affiliates' receivables from, their foreign parent groups give rise to inflows on intercompany debt accounts. Increases in affiliates' receivables from, or reductions in affiliates' payables to, their foreign parent groups give rise to outflows.

Not all intercompany debt transactions reflect actual flows of funds. For example, when distributed earnings, interest, or royalties and license fees from a U.S. affiliate accrue to a foreign parent group, the full amount is included as an income or royalty and license fee payment (an outflow) on foreign direct investment in the United States. If all or part of that amount is not actually transferred to the foreign parent group, the amount not transferred is entered into intercompany accounts as an increase in the U.S. affiliate's payables to its foreign parent group (an inflow).

The net change in intercompany debt includes changes in the value of capital leases and operating leases of more than 1 year between foreign parent groups and their U.S. affiliates. When property is leased by a U.S. affiliate from its foreign parent group, the value of the leased property is recorded as an intercompany debt inflow because it increases the affiliate's payables. The subsequent payment of principal on a capital lease, or of depreciation on an operating lease, is a return of capital and is recorded as an intercompany debt outflow because it reduces the affiliate's payables. When property is leased by a U.S. affiliate to its foreign parent group, the flows recorded are the reverse of the preceding.

Coverage, measurement, and presentation.—All intercompany debt flows result from transactions between foreign parent groups and U.S. affiliates. Equity capital flows, however, may result from transactions between foreign parents and either the U.S. affiliate or unaffiliated U.S. persons. An example of an equity capital flow resulting from a transaction between a foreign parent and an unaffiliated U.S. person is the parent's purchase of an affiliate's capital stock from such a person.

Direct investment capital inflows exclude transactions among members of a foreign parent group or between the members of the group and other foreigners, because foreign-to-foreign transactions are not U.S. balance of payments transactions. Thus, if a foreign parent purchases additional capital stock in a U.S. affiliate from

26. "Stock dividends" are used here to refer to essentially the same concept as is discussed in the IMF *Manual* (see footnote 5) under the heading of "bonus shares." BEA has retained its terminology because it conforms to what U.S. firms understand by the term "stock dividend."

another foreign person, the foreign parent's ownership interest in the U.S. affiliate will increase, but no equity capital inflow is recorded, because the transaction occurs entirely outside the United States. In addition, there is no net increase in foreign claims on the United States; instead, the foreign parent's claims have merely been substituted for the claims of the other foreign person.[27]

However, if the foreign parent's original interest represented only a portfolio (less-than-10-percent) investment interest and if, as a result of the purchase of an additional interest, the combined interests qualify as a direct investment, a direct investment capital inflow and offsetting portfolio investment capital outflow are recorded to change the status of the original interest. Similarly, if a foreign parent's interest in an affiliate falls below 10 percent, a direct investment capital outflow is recorded to extinguish the direct investment interest, and an offsetting portfolio investment capital inflow is recorded for the new portfolio interest.

In cases of reverse investment, treatment of reverse equity capital and intercompany debt flows is the same as that for the analogous accounts in the direct investment position.

Equity capital and intercompany debt inflows can be disaggregated into several subaccounts. Equity capital inflows, which are recorded as a net amount, can be disaggregated to show increases in equity separately from decreases. Intercompany debt inflows are disaggregated to show flows resulting from changes in U.S. affiliates' payables separately from flows resulting from changes in U.S. affiliates' receivables. Certain transactions may affect two or more of these subaccounts simultaneously and by exactly offsetting amounts. Such transactions are "grossed up"; that is, the inflows and the offsetting outflows are recorded in the affected subaccounts rather than being netted to zero and not recorded in any subaccount. However, because such gross flows are offsetting, they have no effect on net capital inflows. For example, the capitalization of intercompany debt, which gives rise to an intercompany debt outflow and an offsetting equity capital inflow, results in gross, but not net, flows.

Direct investment income

Direct investment income is the return on the foreign direct investment position in the United States; that is, it is the foreign parents' return on their debt and equity investment in their U.S. affiliates plus the return of other members of the foreign parent groups on their debt investment in U.S. affiliates. Direct investment income consists of earnings (that is, foreign parents' share in the net income of their U.S. affiliates) plus interest on intercompany accounts of U.S. affiliates with their foreign parent groups (where interest is defined as interest paid by U.S. affiliates to their foreign parent groups net of interest received by U.S. affiliates from their foreign parent groups). Earnings are the foreign parents' return on their equity investment, and interest is the foreign parents' return on their debt investment in U.S. affiliates.

Direct investment income is reported as accrued. Direct investment income and earnings exclude currency-translation adjustments and other capital gains and losses. Table 8 shows direct investment income and the relationship among its components for all U.S. affiliates from the 1992 benchmark survey.

Several changes have recently been made in the definition of direct investment income and earnings. The changes concern the treatment of capital gains and losses, currency-translation adjustments, and withholding taxes.

In June 1990, BEA began to exclude from direct investment income and earnings currency-translation adjustments—that is, gains and losses that arise because of changes, between accounting periods, in exchange rates applied in translating affiliates' foreign-currency-denominated assets and liabilities into dollars. In 1992, BEA began excluding all other capital gains and losses, whether or not such gains and losses are included in net income for income statement purposes. These changes were made in order to make income and earnings correspond more closely to the current operating performance of affiliates, as recommended by international guidelines for the compilation of balance of payments accounts.

BEA has also changed its treatment of withholding taxes.[28] Previously, direct investment income

27. If this exchange involves more than one country, offsetting valuation adjustments are made to the direct investment position, reducing the position of the seller's country and increasing the position of the purchaser's country.

28. Withholding taxes are taxes withheld by governments on income or other funds that are distributed or remitted.

Table 8.—Direct Investment Income and Its Components

[Millions of dollars]

Earnings	–6,598
Distributed earnings	8,113
Reinvested earnings	–14,711
Interest	6,730
U.S. affiliates' payments	9,465
U.S. affiliates' receipts	2,735
Income	133

had been measured after the deduction, or net, of U.S. withholding taxes on distributed earnings received by foreign parents from their affiliates and after the deduction of foreign and U.S. withholding taxes on interest. In June 1992, direct investment income was redefined to be before deduction, or gross, of all withholding taxes.

The new treatment views withholding taxes as being levied upon the recipient of the distributed earnings or interest and thus as being paid across borders, even though, as an administrative convenience, the taxes actually were paid by the affiliate whose disbursements gave rise to them. Thus, U.S. withholding taxes on distributed earnings and on interest received by the foreign parent are recorded as if they were paid by the foreign parent, not by the U.S. affiliate. Similarly, foreign withholding taxes on interest payments by the foreign parent are recorded as if they were paid by the U.S. affiliate, not by the foreign parent. Counterentries for these taxes are made in the U.S. balance of payments accounts under unilateral transfers. This change in methodology is in line with the new international guidelines for compiling balance of payments accounts contained in the IMF *Balance of Payments Manual* (see footnote 5).

BEA collects data on withholding taxes on distributed earnings on its quarterly surveys of foreign direct investment in the United States, but withholding taxes on interest, royalties and license fees, and other private services are collected only in benchmark surveys. Withholding taxes on these items must be estimated for nonbenchmark years; the estimates are prepared, and are shown in the U.S. balance of payments accounts, only on a global basis, not disaggregated by country or industry.

Interest is recorded on a net basis, as interest paid or credited to foreign parents and other members of the foreign parent groups on debt owed to them by U.S. affiliates less interest received from or credited by foreign parents and other members of the foreign parent groups on debt owed by them to U.S. affiliates.[29] Interest receipts are netted against interest payments because in the intercompany debt component of the direct investment position, debt owed by foreign parent groups to U.S. affiliates is netted against debt owed by U.S. affiliates to foreign parent groups. Like other components of direct investment income, interest is reported as accrued. It includes interest paid through debt creation or in kind, as well as interest paid in cash.

Interest includes net interest payments on capital leases between U.S. affiliates and their foreign parent groups because the outstanding capitalized value of such leases is included in the intercompany debt component of the direct investment position.

Direct investment royalties and license fees

Direct investment royalties and license fees consist of payments by U.S. affiliates to, and receipts by U.S. affiliates from, their foreign parents and other members of the foreign parent groups of fees for the use or sale of intangible property or rights, such as patents, industrial processes, trademarks, copyrights, franchises, designs, know-how, formulas, techniques, manufacturing rights, and other intangible assets or proprietary rights.

Like income, royalties and license fees were redefined in June 1992 to be measured before the deduction, or gross, of U.S. and foreign withholding taxes. Previously, they had been presented in the U.S. balance of payments accounts after the deduction, or net, of withholding taxes. In 1992, withholding taxes on both payments and receipts of royalties and license fees were relatively small—$46 million out of gross payments of $2,980 million and $5 million out of gross receipts of $616 million.

In June 1992, BEA began recording U.S. affiliates' receipts of royalties and license fees as U.S. exports of services in the balance of payments accounts. Previously, these receipts were netted against U.S. affiliates' payments of royalties and license fees, and the net amount was shown as U.S. services imports; in effect, the receipts were deducted from imports rather than added to exports.

Payments and receipts of royalties and license fees are based on the books of U.S. affiliates and are reported as accrued. When funds are not actually transferred, offsetting entries are made in the intercompany debt account.

Other direct investment services

Transactions in other direct investment services consist of payments by U.S. affiliates to, and receipts by U.S. affiliates from, their foreign parents or other members of their foreign parent groups of service charges, of charges for the use of tangible property, and for film and television tape rentals. Payments and receipts are reported

29. For U.S. affiliates that are depository institutions (commercial banks, savings and loan institutions, and credit unions), interest includes only net payments on permanently invested debt capital.

as accrued and are based on the books of U.S. affiliates.

In June 1992, payments and receipts of other direct investment services, which had been recorded in the U.S. balance of payments accounts after the deduction, or net, of withholding taxes, began to be recorded gross of withholding taxes. In 1992, withholding taxes on other direct investment services were very small—only $2 million on gross payments of $3,898 million and less than $1 million on gross receipts of $6,394 million.

In June 1992, BEA also began recording U.S. affiliate receipts for other private services as U.S. exports of services in the balance of payments accounts. Previously, these receipts were recorded as deductions from U.S. services imports.

Service charges.—Service charges consist of fees for services—such as management, professional, or technical services—rendered between U.S. affiliates and their foreign parents or other members of their foreign parent groups. The service charges may represent sales of services or reimbursements. Sales of services are receipts for services rendered that are included in sales or gross operating revenues in the income statement of the seller. Normally, receipts are included in sales if the performance of the service is a primary activity of the enterprise. (For example, if a U.S. management-consulting firm provides management-consulting services to its foreign parent or foreign parent group, the resulting revenues are included in its sales.)

Reimbursements are receipts for services rendered that are normally included in "other income" rather than in sales in the income statement of the provider of the service. Typically, the performance of the service is not a primary activity of the enterprise; however, the service may facilitate or support the conduct of the enterprise's primary activities. (For example, if a foreign manufacturer provides management services to its U.S. manufacturing affiliate, the associated charges normally would be recorded in its income statement under "other income" and reported to BEA as a reimbursement.)

Reimbursements may be allocated expenses or direct charges for the services rendered. Allocated expenses are overhead expenses that are apportioned among the various divisions or parts of an enterprise. An example would be research and development assessments on the U.S. affiliate by its foreign parent for R&D the parent performs and shares with its affiliate.

Charges for the use of tangible property.—Charges for the use of tangible property include total lease payments under operating leases of 1 year or less and net rent on operating leases of more than 1 year. From the lessors' viewpoint, total lease payments for operating leases consist of two components: (1) Net rent, which covers interest, administrative expenses, and profit, and (2) depreciation, which is a return of capital.

For operating leases of more than 1 year, net rent is included in "other direct investment services," and depreciation is included as an intercompany debt flow in the direct investment capital account. For operating leases of 1 year or less, total lease payments—both net rent and depreciation—are included in "other direct investment services." Because the value of property leased to or from foreigners for 1 year or less is excluded from U.S. merchandise exports and imports in the U.S. balance of payments accounts, no export or import to or from the foreign parent groups by U.S. affiliates is recorded in the merchandise trade account; thus, there is no subsequent return of capital to or from the foreign parent groups in the form of depreciation to be recorded in the direct investment capital account. Such depreciation is instead considered part of rentals—a payment for services rendered by, rather than a return of capital to, the foreign parent groups.

Film and television tape rentals.—Film and television tape rentals are rentals that U.S. affiliates pay to, or receive from, foreign parents or other members of the foreign parent groups for the sale or use of film and television tapes. Except for mass-produced films and tapes, such as prerecorded video cassettes (which are recorded in merchandise trade), such film and television tapes are treated as if they were being rented rather than sold, and payments for the tapes are considered payments for services rather than payments for merchandise. This treatment is used because the value of the tapes is derived mostly from the services—entertainment, education, and so on—that they provide, not from the value of the media on which they are recorded. Thus, the cost of the film and television tapes is excluded from U.S. merchandise trade and is included instead in "other direct investment services."

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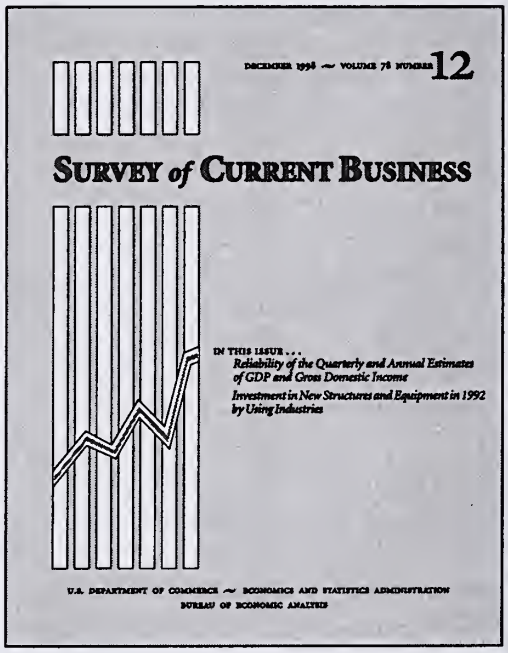

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